PART 3

Final Examinations



Final Examinations of some Governorates.

Important note :

There is an additional question at the end of the school's examinations on the parts which are canceled from the syllabus of the previous year.

PART 3

1 Cairo Governorate — St. Fatima Language School

Answer the following questions :

Question 1

A Complete the following statements :

1. .... and .... are examples of monovalent atomic groups.
2. .... and .... are from the benefits of friction.
3. (H_2SO_4) is .... , while (NaOH) is ....
4. An atom of .... doesn't lose or gain any electrons under ordinary conditions.
5. Carbon monoxide is a dangerous gas which causes .... and ....
6. Granite is from .... rocks.

B Compare between :

1. Positive ion and negative ion.
2. Plutonic and volcanic rocks.

Question 2

A Choose the correct answer :

1. Regarding the volume, the Earth occupies the .... order in the solar system.
   a. third b. fourth c. fifth d. eighth
2. All of nonmetals don't conduct electricity except ....
   a. bromine. b. aluminium. c. graphite. d. mercury.
3. When an atom loses, gains or shares by one electron, its valency is ....
   a. monovalent. b. divalent. c. trivalent. d. tetravalent.
4. Water bodies on the Earth's surface form the percentage of ....
   a. 50 % b. 71 % c. 40 % d. 30 %
5. .... oxides are resulted during the time of lightning.
   a. Carbon b. Sulphur c. Nitrogen d. (a) and (b)
6. The bar used in electromagnet is made up of ....
   a. isolated copper. b. soft iron. c. silver. d. aluminium.
7. From the examples of forces inside living systems : ....
   a. pulse inside blood vessels. b. inertia.
   c. brakes. d. all of the previous answers.

B Knowing that the mass of carbon (C) is 12 and oxygen (O) is 16, find the total mass of reactants and products through the following reaction : $C + O_2 \longrightarrow CO_2$

C Define : 1. Relative motion. 2. Chemical equation.

Question 3

A Correct the underlined words :

1. The chemical formula of carbonate group is **$(HCO_3)^-$**.
2. **Sandstone** is an example of metamorphic rocks.
3. **Hydrogen** gas is used by plants to form proteins.
4. Simple pendulum motion is a **transitional motion**.
5. Strong nuclear forces are used in **getting radioactive elements used in medicine**.
6. Water molecule consists of **four** atoms for two elements.

B Give reasons for :

1. Both sodium ion and oxygen ion have the same number of electrons (Na = 11, O = 8).
2. Acids have different effect on litmus paper than that of bases.
3. Astronauts can't hear each other voices directly in space.

C Calculate the mass of an object if its weight is 980 newton and the Earth's gravitational acceleration is 9.8 m/sec^2.

Question 4

A Write the electronic configuration of each of the following atoms :

1. $_{1}H$ 2. $_{11}Na$ 3. $_{17}Cl$ 4. $_{10}Ne$

Then indicate :

1. The type of each element (metal – nonmetal – noble gas).
2. How the bond is formed between :
   a. Two hydrogen atoms. b. Sodium and chlorine atoms.

B Write the scientific term :

1. A molten material exists at depths beneath the crust.
2. Oxides that cause building corrosion.
3. The only metal exists in a liquid state.
4. Oxides produced due to the combination of oxygen with a nonmetal.

5. Waves which don't need a medium to travel through.
6. The sum of reactants masses in any chemical reaction equals the sum of products masses.

C What happens when ... ?

1. The passengers don't use the safety belts in car.
2. Burning of coal and cellulose fibres.

Additional questions

A Complete the following statements :

1. The nearest planet to the Sun is .... , while the farthest planet from the Sun is ....
2. The comets consist of two parts, which are .... and ....

B Write the scientific term :

1. A system that consists of thousands of millions of stars.
2. It is the distance covered by light in one year.

2 Cairo Governorate — The Good Shepherd Sisters' School

Answer the following questions :

Question 1

A Correct the underlined words :

1. The symbol of carbonate atomic group is (**NH_4**).
2. The more we approach to the Earth's centre, the value of the Earth's gravitational acceleration **decreases**.
3. Electric circuit has a **kinetic** effect.
4. The symbol of lead is (**Ld**).
5. The Earth is located in the **fifth** arrangement from the Sun.
6. Basalt is an example of **sedimentary** rocks.

B Write the suitable scientific term :

1. Elements having 1, 2 or 3 electrons in their outermost energy level.
2. Materials dissolve in water producing $(OH)^-$.
3. Breaking bonds in reactants atoms and forming new bonds in products.

4. The change in an object's position as time passes relative to another object.
5. A gas represents 21% of the Earth atmosphere.
6. Natural solid material, that exists in the Earth's crust.

Question 2

A Complete the following sentences :

1. Symbol of zinc is .... and its valency is ....
2. $2CO + O_2 \xrightarrow{\Delta}$ ....
3. Burning of .... causes lung cancer, while .... resulting from lightning affect the nervous system.
4. Electric motor converts .... energy into .... energy.
5. Friction causes .... of machines parts.
6. Cooking food is an application of .... rays while discovering tumors is an application of .... rays.
7. The Earth layers from the surface to the centre are : the crust, ... and ....

B What happens ... ?

1. To the passengers if a vehicle starts working in front direction after rest.
2. To the force of inertia when we use safety belts in a car.

Question 3

A Write the molecular formula of each of the following :

1. Sodium hydroxide.
2. Calcium oxide.
3. Copper carbonate.

B Write the following chemical equations :

1. Carbon burning in the presence of oxygen.
2. Hydrochloric acid combined with ammonia gas.

C Problem : Calculate the mass of an object of weight 490 newton, if the Earth's gravitational acceleration is 9.8 m/sec^2.

Question 4

A Choose the correct answer :

1. The type of bond in oxygen molecule is .... bond.
   a. ionic b. single covalent c. double covalent

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2. (Na_2O) is an example of ....

a. oxide. b. salt. c. acid.

3. .... nuclear forces are used in medicine and scientific researches.

a. Weak b. Strong c. (a) and (b)

4. .... is a force found in the living systems.

a. Inertia b. Brake c. Pulse in blood vessels

5. The pendulum is an example of .... motion.

a. vibrating b. wave c. circular

6. Limestone is a type of .... rocks.

a. sedimentary b. igneous c. metamorphic

B Give reasons for :

1. Acids change the colour of litmus paper into red.
2. Importance of electromagnet.
3. We see lightning before hearing thunder.
4. Effervescence takes place when ($HC\ell$) is added to limestone.

C Write the electronic configuration of :

($^{20}_{10}Ne$) and mention its type.

Additional questions

A Choose the correct answer :

1. The inner planets having moons rotating around them except ....

a. Mercury and Mars. b. Venus and Mars.
c. Mercury and Venus. d. (a) and (b).

2. The celestial bodies that consist of head and tail are ....

a. meteors. b. asteroids c. comets. d. meteorites.

B Give a reason for :

The density of the outer planets is low.

3 Cairo Governorate — Sunrise Language School

Answer the following questions :

Question 1

A Complete the following sentences :

1. The bond in sodium chloride molecule is .... bond whereas the bond in water molecule is .... bond.
2. The weight of an object is measured in .... unit.
3. Granite consists of .... , ... and .... minerals.
4. The chemical formula of sulphuric acid is ....
5. Limestone is from .... rocks, but granite is from .... rocks.
6. The .... layer in the atmospheric air protects living organisms from the harmful rays.

B Correct the underlined words :

1. Inner core of the Earth is rich in iron and **aluminium**.
2. **Salts** are substances that dissociate in water producing negative hydroxide ions $(OH)^-$.

C Name two benefits of friction forces.

Question 2

A Choose the correct answer :

1. The car brake performance is an application of ....
   a. attraction force. b. centrifugal force. c. friction force. d. force of inertia.
2. The layer which consists of molten metals is the ....
   a. crust. b. outer core. c. mantle. d. inner core.
3. All the following are metals except ....
   a. iron. b. copper. c. oxygen. d. sodium.
4. Electromagnet is used in making ....
   a. calculator. b. microscope. c. electric bell. d. night vision apparatus.
5. The chemical formula of sodium hydroxide is ....
   a. Na_2CO_3 b. NaCl c. NaOH d. HCl

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6. The Earth is located in the solar system regarding its distance from the Sun in the .... position.

a. fifth b. third c. fourth d. seventh

B Mention one difference between :

1. Electric motor and electric generator.
2. The crust and mantle.
3. Metals and nonmetals.

C Give one example for :

1. Mechanical waves.
2. Igneous volcanic rock.

Question 3

A Write the scientific term for each of the following sentences :

1. The number of electrons gained, lost or even shared by an atom during a chemical reaction.
2. A rock formed of lava flows when it comes on the Earth's surface.
3. It's an atom that gains one electron or more.
4. The motion which is regularly repeated in equal periods of time.
5. The Earth attraction force to an object.

B Give reasons for :

1. Effervescence takes place when hydrochloric acid is added to a sample of limestone.
2. The car passengers are rushed forward when the car stops suddenly.

C Which of the following rocks is sedimentary, igneous or metamorphic ?

1. Marble. 2. Sandstone.

Question 4

A Put true in front of the right statement and false in front of the wrong one :

1. When ammonia gas reacts with hydrochloric acid, white clouds are formed. ( )
2. The water bodies represent about 50 % of the Earth's surface. ( )
3. Air pressure on the Earth's surface is suitable for the continuity of life. ( )
4. Sodium hydroxide changes the colour of litmus paper into red. ( )
5. Green plants use carbon dioxide gas in photosynthesis process. ( )
6. The idea of machine lubrication depends on the decreasing of the friction force. ( )

B **Mention one application / importance for each of the following :**

1. Ultraviolet rays. 2. Infrared rays. 3. Oxygen gas.

C **Problem :**

Calculate the mass of an object weights 98 newton (knowing the Earth's gravity = 9.8 m/sec^2).

Additional questions

A **Correct the underlined words :**

1. The inner planets are equal in size to the outer planets.
2. The most famous comet for the inhabitants of the Earth is Pluto.

B **What happens when ... ?**

1. Meteors enter the atmosphere.
2. We can't invent the telescope.

4 Cairo Governorate — Pioneer Integrated School

Answer the following questions :

Question 1

A **Complete the following :**

1. The symbol of oxygen ion is .... while that of sodium ion is ....
2. Burning of coal and cellulose fibres causes .... pollution and ....
3. Nonmetals are bad conductors of electricity except ....
4. .... is from pneumatic instruments.
5. Electric generator is used to change the .... energy into .... energy.
6. .... gas is used in combustion process.
7. .... is an example of igneous volcanic rocks.
8. .... is used in Egypt to generate electricity.

B **Compare between each of the following :**

1. Positive ion – negative ion (according to definition – example).
2. Basalt – granite (according to minerals forming it).

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Question 2

A Choose the correct answer :

1. (SO_4) is an example for .... atomic group.
   a. trivalent b. monovalent c. divalent d. no correct answer
2. All of the following are covalent molecules except ....
   a. H_2O b. MgO c. HCl d. O_2
3. The apple falls down between an object and the Earth is equal to the ....
   a. electromagnet force. b. Earth's gravitational force.
   c. weak nuclear force. d. strong nuclear force.
4. The Earth's inner core contains .... in solid state.
   a. iron & copper b. nickel & copper
   c. iron & nickel d. copper & aluminium
5. In the periodic motion, the ....
   a. pathway is straight. b. motion is regularly repeated.
   c. time is regularly repeated. d. speed is regularly changed.
6. The unit of measuring the weight is ....
   a. m/sec. b. joule. c. newton. d. kg.
7. .... are used in night vision apparatus.
   a. Infrared rays b. Ultraviolet rays c. Gamma rays d. X-rays
8. Igneous plutonic rocks are formed of molten material underneath the Earth's crust which is called ....
   a. magma. b. lava. c. core. d. mantle.

B What is meant by each of the following ... ?

1. Chemical reaction.
2. The law of conservation of matter.

Question 3

A Write the scientific term :

1. The effect that attempts to change the object's phase from being static to motion.
2. The gas that acts as a greenhouse.
3. Compounds produced as a result of the combination of a positive metal ion with a negative atomic group except oxygen.
4. It is the motion of an object in which its position is changed relative to a fixed point from initial to final positions.

B Calculate the mass of an object, its weight is 100 newton in a place on the Earth. (knowing that the Earth's gravity in this place = 10 m/sec^2).

C Put (✓) or (✗) and correct the wrong statements :

1. Marble is an example of igneous rocks. ( )
2. Weight of the body doesn't change from place to another on the Earth's surface. ( )
3. Sodium chloride is considered as a base. ( )
4. We see lightning before hearing thunder. ( )

Question 4

A Give reasons for each of the following :

1. A white powder is formed when a magnesium ribbon is burned in the air.
2. The presence of a white colour surrounds the Earth planet.
3. Volcanic rocks contain small circular holes.
4. Object's weight changes from one place to another on the Earth's surface.
5. The car passengers are rushed forward when the moving car stops suddenly.

B What happens when ... ?

1. You add hydrochloric acid to limestone.
2. A glass rod wet with ammonia solution is exposed to a test tube containing concentrated hydrochloric acid.

C Write the chemical formula of the following compounds :

1. Sodium bicarbonate	....
2. Aluminium sulphate	....

Additional questions

A Complete the following statements :

1. The reflecting telescopes are used for ....
2. The two factors affecting the force of gravity between two celestial bodies are .... and ....

B Compare between :

Inner planets and outer planets.

PART 3

5 Cairo Governorate — El Shaheed Ibraheem El-Refaey Language School

Answer the following questions :

Question 1

A Complete the following :

1. Elements can be classified according to their properties and electronic structure into ...., ... and noble gases.
2. The bond in magnesium oxide molecule is ...., but the bond in molecule of water is ....
3. $2Mg + O_2 \xrightarrow{\Delta}$ ....
4. Waves are divided into two types which are .... waves and electromagnetic waves.
5. The Earth consists of number of arranged layers from the surface to the centre : the crust, ... and ....

B Give reasons for :

1. Ionic bonds produce compounds only not elements, but the covalent bonds produce both types, an element or even a compound.
2. Temperature on the Earth's surface suits the life of living organisms.
3. Policemen advise drivers using safety belts in cars and planes.
4. Effervescence takes place when hydrochloric acid is added to a sample of limestone.

Question 2

A Write the scientific term that indicated by each of the following statements :

1. A bond resulting from the participation of each of the two atoms with 3 electrons.
2. A movement repeated regularly at equal intervals of time.
3. A natural solid material that exists in the crust and consists of one mineral or a group of minerals.
4. An atom that lost an electron or more during the chemical reactions.
5. The property of object resistance to change its state from the rest of movement unless a force affects on it.
6. It is a thin non-compacted layer which covers the Earth's crust.
7. The amount of Earth's attraction to the object.

B Knowing that the mass of carbon (C) = 12 and oxygen (O) = 16, find the total masses of reactants and products through the following reaction :

$$C + O_2 \xrightarrow{\Delta} CO_2$$

C Give one example for each of the following :

1. Mechanical waves.
2. The igneous volcanic rocks.
3. Electromagnetic waves.
4. Salt dissolve in water.

Question 3

A Write down the electronic configuration of the atoms of the following elements :

1. ${}_{12}Mg$ 2. ${}_{18}Ar$

Then indicate :

1. The type of each atom (metal – nonmetal – noble gas).
2. The type of each ion (positive – negative - has no ions).

B Choose the correct answer :

1. The Earth is located in the solar system regarding its distance from the Sun in the .... order.
   a. fifth b. fourth c. third d. seventh
2. If the weight of a body is 400 newton, knowing that gravitational acceleration of the Earth is 10 m/sec^2, its mass = ...
   a. 40 kg. b. 4 kg. c. 4000 kg. d. 80 kg.
3. Electromagnet is used in making the ....
   a. calculator. b. electric bell. c. microscope. d. night vision system.
4. The fresh water represents .... of the total water on the Earth's surface.
   a. 97 % b. 71 % c. 29 % d. 3 %
5. The car brake performance is an application of ....
   a. attraction forces. b. friction forces. c. centrifugal forces. d. forces of inertia.
6. The main minerals that share in the structure of granite are ....
   a. quartz, feldspar & mica. b. calcite.
   c. olivine & pyroxene. d. (b) and (c).

C Write one technological application for each of the following :

1. Infrared rays. 2. Ultraviolet rays. 3. X-rays. 4. Visible (seen) light.

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Question 4

A Write the chemical formula for the following molecules :

1. Magnesium oxide.
2. Sodium sulphate.
3. Hydrochloric acid.

B The following formulae represent some molecules, name each one :

1. $NaNO_3$
2. $Ca(OH)_2$
3. CO_2

C Compare between :

1. Acids and bases giving examples for each.
2. Electric generator and electric motor.

D Correct the underlined words :

1. The water of ocean is **fresh** water.
2. Electric generator (dynamo) converts the **heat energy** into electric one.
3. Inner core of the Earth is rich in iron and **aluminium**.
4. **Basalt** is a sedimentary rock.

Additional questions

A Choose the correct answer :

1. The Sun is a ....
   a. meteor. b. planet. c. star.
2. Which of the following planets has the largest gravity on its surface ? ....
   a. Mercury. b. Earth. c. Venus.

B Give a reason for :

1. Planets revolve around the Sun in fixed orbits.
2. Astronomers do not measure the distances between stars by kilometres.

6 Giza Governorate — Al Farouk Language School

Answer the following questions :

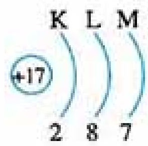
Question 1

A Write the scientific term :

1. Breaking of bonds between the molecules of reactants and formation new bonds between the molecules of products.
2. A bond is produced due to electric attraction between a positive ion and a negative ion.

3. The attraction of the Earth to object.
4. It is the change in object's position by passing time relative to a fixed point.
5. A wave that needs medium to pass through.

B From the electronic configuration for the following element, complete :



1. The type of element : ....
2. The valency of element : ....
3. The ion of the element : ....
4. The type of chemical bond when it combines with sodium ($_{11}$Na) : ....

Question 2

A Give reasons for :

1. An effervescence takes place when hydrochloric acid is added to a piece of limestone.
2. Infrared rays are used in cooking food.
3. By burning a magnesium ribbon, white powder is formed.
4. We see lightning before hearing thunder although they occur at the same time.

B What happens in the following cases ... ?

1. The absence of carbon dioxide gas.
2. If an electric current passes in an isolated electric wire and coiled around wrought iron bar.
3. Approaching a glass wet of ammonia solution from tube has concentrated hydrochloric acid.

Question 3

A Write the name of each compound from the following and mention its type (acid – oxide – base – salt) :

1. CaO 2. Na_2SO_4 3. KOH 4. HNO_3

B Calculate the weight of a body its mass is 50 kg, knowing that acceleration due to gravity is 10 m/sec^2.

C Calculate the total masses of reactants and products of the following reaction :

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$

Knowing that the mass number of elements as Mg = 24 , O = 16

Question 4

A Mention the name of environmental pollutants that causes :

1. The harms of nervous system and eye. 2. Lung cancer.

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B Correct the underlined words :

1. <u>Dynamo</u> is used in making an electric bell.
2. <u>Metamorphic</u> rocks are formed by the formation of sediments.
3. <u>Salts</u> are decomposed in water producing negative hydroxide ions.

C Complete the following sentences :

1. Limestone is from .... rocks, while .... is from metamorphic rocks.
2. Dynamo changes .... energy into .... energy.
3. The valency of phosphate group is .... , while the valency of carbonate group is ....

Additional questions

A Complete the following statements :

1. The types of telescopes are .... and ....
2. The greatest unit that forms the universe is called ....

B What happens when ... ?

1. A meteorite enters the atmosphere.
2. Travelling from Earth planet to Mars planet (related to the attraction force).

7 Giza Governorate — Talaee Islamic Language School

Answer the following questions :

Question 1

A Write the scientific term :

1. A set of atoms joined together, behave like one atom only, having a special valency and cannot be existed individually.
2. A molten material exists at depths beneath the crust.
3. The motion in which the object's position is changed relative to a fixed point from time to time.
4. Substances are dissociated in water producing negative hydroxide ions $(OH)^-$.
5. An effect that attempts to change the object state from being static to motion or vice versa.
6. Atmospheric layer that protects the living organisms from harmful ultraviolet radiation.

B Give reasons for the following :

1. The car passengers are rushed forward when the car stops suddenly.

2. A chemical equation should be balanced.
3. Steadfastness of the hydrosphere on the Earth's surface.
4. The bond in an oxygen molecule is a double covalent bond.

C Mention one use of :

1. X-rays. 2. Electromagnet.

Question 2

A Complete the following statements :

1. The chemical formula ($NaNO_3$) represents .... molecule, while (H_2SO_4) formula represents .... molecule.
2. Green plants use .... gas in photosynthesis process, and use .... gas to form proteins.
3. .... bonds produce compound molecules only, while .... bonds produce elements and compounds molecules.
4. Granite consists of ...., ... and .... minerals.

B Compare between metals and nonmetals.

C Calculate the weight of a 0.8 kg mass ball, knowing that the Earth's gravitational acceleration is 9.8 m/sec^2.

Question 3

A Choose the correct answer :

1. Regarding to the volume, Earth occupies the .... order in the solar system.
   a. fifth b. fourth c. third d. seventh
2. All of the following are electromagnetic waves except the ....
   a. sound waves. b. ultraviolet waves. c. infrared waves. d. visible light.
3. During chemical reactions, potassium ($_{19}K$) atom loses electron(s) and changes into ....
   a. K^+ b. K^- c. K^{-2} d. K^{+2}
4. Car brakes are one of the applications of ....
   a. gravitational force. b. friction force. c. nuclear force. d. force of inertia.
5. All of the following turn blue litmus paper into red except ....
   a. HCl b. HNO_3 c. NaOH d. H_2SO_4

B Write the electronic configuration for the following elements :

1. $^{14}_{7}N$ 2. $^{24}_{12}Mg$

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Then mention :

1. The type of each element.
2. The type of formed ion for each element.

C What do we mean by ... ?

1. Periodic motion.
2. Inert element.

Question 4

A Correct the underlined words :

1. The bond in nitrogen molecule is **single covalent** bond.
2. **Mass** is an attraction amount of Earth to the body.
3. Dynamo converts the **heat energy** into electric one.
4. Lithium ($_3Li$) is **divalent**.
5. **Bromine** is the only liquid metal.

B Write the chemical formula for the following compounds :

1. Hydrogen chloride.
2. Aluminium carbonate.

C Mention the differences between the sandstone rock and the limestone rock.

Additional questions

A Write the scientific term :

1. Opaque bodies that revolve around the Sun in one direction.
2. An instrument that is used in identifying the celestial bodies.

B Put (✓) or (✗) and correct the worng one :

1. The galaxy that our solar system belongs to is "The Milky Way galaxy". ( )
2. Jupiter is from inner planets. ( )

8 Giza Governorate — Abo El-Nomrous Educational Directorate

Answer the following questions :

Question 1

A Complete the following :

1. The force of gravity between two objects depends on .... and ....
2. The motion of simple pendulum is .... motion, while the motion of the train is .... motion.

3. Granite belongs to .... rocks, while marble belongs to .... rocks.

4. The electric motor changes .... energy into .... energy.

B Give reasons for :

1. Lubricating and oiling of mechanical machines.
2. The chemical equation must be balanced.
3. We see lightning before hearing thunder.

Question 2

A Choose the correct answer :

1. Electromagnet is used in making ....
   a. microscope. b. night vision systems.
   c. electric bell.
2. The measuring unit of weight is ....
   a. newton. b. kilogram. c. kilometre.
3. From the applications on ultraviolet rays is ....
   a. photographing bones. b. sterilizing surgical operation rooms.
   c. night vision systems.
4. .... oxides are resulted during time of lightning.
   a. Carbon b. Sulphur c. Nitrogen
5. The outer layer of the Earth is the ....
   a. crust. b. mantle. c. core.
6. The volcanic flows is known as ....
   a. magma. b. lava. c. mantle.
7. Car brake is one of the application of .... forces.
   a. friction b. nuclear c. inertia
8. Inner core of the Earth is rich in ....
   a. iron and copper. b. iron and nickel. c. iron and silver.

B Mention one use of :

1. Friction. 2. Electromagnet.
3. Electric generator. 4. Safety belts in cars.

C If the Earth's gravitational acceleration in a place is 10 m/sec^2, find the weight of an object if its mass is 60 kg.

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Question 3

A Put (✓) or (✗) and correct the wrong ones :

1. Strong nuclear force is used in scientific researches. ( )
2. Basalt consists of quartz, feldspar and mica minerals. ( )
3. When ammonia gas reacts with hydrochloric acid, white powder is formed. ( )
4. Fresh water represents 3% of total volume of water on the Earth. ( )
5. Force is an amount of attraction of Earth to the body. ( )
6. Chemical formula of carbonate group is $(CO_3)^-$. ( )
7. Water consists of four atoms for two elements. ( )
8. The valency of noble gases is zero. ( )

B If you have an element : $^{39}_{19}X$

1. Mention its kind, why ?
2. Mention its valency (give a reason).
3. Write the chemical formula of its oxide.
4. It combines with sulphate to give .... salt.

Question 4

A Compare between :

1. Acids and bases.
2. Metal oxides and nonmetal oxides.
3. Carbonate group and bicarbonate group.

B What is meant by ... ?

1. Positive ion.
2. Valency.
3. Weight.

C What happens in each of the following ... ?

1. If we burn a magnesium strip in air.
2. A chlorine atom combines with hydrogen atom.

D Write the chemical equation for :

1. Magnesium with oxygen.
2. Carbon monoxide with oxygen.
3. Ammonia with concentrated hydrochloric acid.

Additional questions

A Complete the following statements :

1. The nearest planet to the Sun is .... , While the farthest planet from the Sun is ....
2. The number of moons revolving around Jupiter is ...., while that revolves around Mars is ....

B Calculate the distance in kilometre between the Sun and a star if the distance between them is 3 light years.

9 Giza Governorate — Delta Language Schools

Answer the following questions :

Question 1

A Complete the following :

1. Some nonmetals have more than one valency such as .... and ....
2. Oil and lubricant are used in machines to ....
3. The total mass of reactants equal the total mass of ....
4. Electromagnet changes .... energy into .... energy.
5. The Earth's inner core has .... and ....
6. .... and .... are examples of sedimentary rocks.

B Write one function for each :

1. X-rays.
2. Strong nuclear force.
3. Ultraviolet rays.

C Find the mass of products and reactants (C = 12 , O = 16) : $C + O_2 \xrightarrow{\Delta} CO_2$

Question 2

A Put (✓) or (✗) and correct wrong one :

1. Acids change litmus paper into blue. ( )
2. Sulphur oxides and nitrogen oxides are acidic gases. ( )
3. Dynamo changes heat energy into electric energy. ( )
4. Ozone layer protects us from harmful infrared rays. ( )
5. Granite is a metamorphic rock. ( )
6. The force is measured in newton. ( )

PART 3

B Compare between mechanical waves and electromagnetic waves (definition, example).

C Write the chemical formula for each :

1. Aluminium oxide.
2. Sulphric acid.
3. Calcium carbonate.
4. Sodium hydroxide.

Question 3

A Write the scientific term :

1. Number of electrons gained or lost or shared during reaction.
2. Substance dissolves in water and gives negative hydroxide ion.
3. Property of object to resist change in its state from rest to motion.
4. Force produced inside nucleus.
5. Breaking bonds of reactants and forming new bonds in products.
6. Elements which are completely filled with electrons in the outermost energy level.

B Define : 1. Metals. 2. Periodic motion.

C Identify the type of each compound :

1. NaCl 2. CO_2 3. $Ca(OH)_2$ 4. MgO 5. HCl 6. AgCl

Question 4

A Give reasons for :

1. The presence of life on the Earth.
2. We see lightning before hearing thunder.
3. When an atom loses electrons it changes into positive ion.
4. Bond between oxygen molecules is a double covalent bond.
5. Potassium is monovalent while oxygen is divalent.
6. Policemen advise drivers to use safety belts in cars.

B Compare between :

Ionic bond and covalent bond (definition - example).

C Complete the following equations :

1. $NH_3 + HCl \xrightarrow{Conc.}$ ....
2. $2CO + O_2 \longrightarrow$ ....
3. $2Mg + O_2 \xrightarrow{\Delta}$ ....
4. $H_2 + Cl_2 \longrightarrow$ ....

Additional questions

A Choose the correct answer :

1. Planets revolve around the Sun in .... orbits.
   a. circular b. elliptical c. spiral
2. The big-sized, less dense planet which consists of gaseous elements is ....
   a. Earth. b. Mercury. c. Jupiter.

B Define :

1. Light year.
2. Asteroids.

10 Alexandria Governorate — Amena El-Saeid Lang. School

Answer the following questions :

Question 1

A Choose the correct answer :

1. The car brake performance is an application of ....
   a. attraction forces. b. friction forces. c. inertia.
2. Metamorphic rock produced as a result of the effect of the heat and pressure on the .... rocks.
   a. igneous b. sedimentary c. (a) and (b)
3. All of the following are periodic motion except ....
   a. the train motion. b. the pendulum. c. the light waves.
4. From the forces inside living systems : ....
   a. pulse inside blood vessels. b. inertia. c. brakes.
5. The outer layer of the Earth is called ....
   a. crust. b. mantle. c. outer core.

B Give reasons for :

1. White clouds are formed when ammonia gas reacts with conc. hydrochloric acid.
2. Presence of life on the surface of Earth's planet.
3. Safety belts are used in cars.
4. When an atom gains an electron more, it becomes a negative ion.

PART 3

C What happens if ... ?

1. The mechanical parts of machines are lubricated.
2. Meteors fall inside the atmosphere.

Question 2

A Complete the following :

1. The electric generator changes mechanical energy into .... energy.
2. Granite consists of .... , ... and mica.
3. The chemical formula of sodium hydroxide is ...., while the chemical formula of sulphuric acid is ....
4. $2NO + O_2 \xrightarrow{\Delta}$ ....

B Knowing that the mass of carbon = 12 and oxygen = 16, find the total mass of reactants and products of the following reaction :

$C + O_2 \xrightarrow{\Delta} CO_2$

C Explain the importance of :

1. Oxygen gas.
2. Carbon dioxide gas.

Question 3

A Write the scientific term :

1. Breaking of the bonds in the reactants molecules and forming new bonds in the products molecules.
2. The motion which is regularly repeated at equal periods of time.
3. It is an effect that attempts to change the object's state from being static to motion or vice versa.
4. Elements whose outermost shells are completely filled with electrons.
5. A set of symbols and chemical formulae expressing the reactants, products and reaction conditions.

B Give one example for :

1. Benefits of friction.
2. A metamorphic rock.

C State one difference between :

1. Mechanical and electromagnetic waves.
2. Inner and outer core.

Question 4

A Put (✓) or (✗) and correct the wrong one :

1. By increasing the ratio of carbon dioxide the temperature increases. ( )
2. The motion of a boy from his house to the school is a periodic motion. ( )
3. In the chemical reaction, the bonds of reactants and products are broken. ( )
4. An element, its atomic number is (20) so its valency is monovalent. ( )

B Calculate the mass of an object its weight is 980 newton and the Earth's gravitational acceleration is 9.8 m/sec^2.

C By drawing only show :

1. Electronic configuration to the atom of oxygen ($^{16}_{8}O$).
2. How two of its atoms are bonded to form oxygen molecule (O_2).

Additional questions

A Give a reason for :

1. The density of the inner planets is high.
2. Moons are considered the follows of the planets.

B Put (✓) or (✗) and correct the wrong one :

1. Halley's comet completes its rotation around the Sun each 67 years. ( )
2. Mars is from inner planets. ( )

11 Alexandria Governorate — Taymour English School

Answer the following questions :

Question 1

A Choose the correct answer :

1. The chemical formula of calcium hydroxide is ....
   a. NaOH b. $CaOH_2$ c. CaOH d. $Ca(OH)_2$
2. Marble is an example of .... rocks.
   a. plutonic b. sedimentary c. metamorphic d. volcanic
3. When an object moves with a distance 80 km each one hour, that means the speed is ....
   a. 80 m/sec. b. 80 km/sec. c. 80 km/h. d. 80 m/h.

PART 3

4. Which of the following represents (Al^{+3}) : .... (given that atomic number of Al is 13).
   a. 2 , 8 b. 2 , 8 , 3 c. 2 , 8 , 8 , 3 d. 2 , 3 , 8
5. From the noble gases : ....
   a. argon. b. sodium. c. chlorine. d. oxygen.
6. .... is a mechanical wave.
   a. Water b. X-ray c. Light d. Infrared
7. The lower layer of Earth is ....
   a. crust. b. upper mantle. c. core. d. lower mantle.
8. All of the following are insoluble salts except ....
   a. PbI_2 b. NaCl c. AgCl d. $PbSO_4$
9. .... is a very thick liquid underneath the Earth's crust.
   a. Lava b. Magma c. Crust d. Mantle
10. From the energies produced due to friction is ....
   a. kinetic energy. b. mechanical energy.
   c. potential energy. d. heat energy.

B $CO + O_2 \xrightarrow{\Delta} CO_2$

1. Calculate the mass of reactants and products.
2. Is this equation balanced ? Why ?
   (The mass of C = 12 & O = 16)

Question 2

A Give reasons for :

1. The valency of noble gases is zero.
2. The bond in (N_2) is a triple covalent bond (atomic number of N is 7).

B Complete the following :

1. .... and .... are accompanied forces to motion.
2. .... , ... and .... are 3 successive stages which help in formation of sedimentary rocks.
3. .... is from the suitable conditions to live on Earth.
4. .... is formed on burning of magnesium in air.
5. .... is an example of igneous rocks.

C If the mass of an object on Venus is 300 grams, calculate its weight if the gravitational acceleration of Venus is 8.87 m/sec^2.

Question 3

A What are the results of ... ?

1. Riding a moving car and stopping suddenly (why).
2. Reaction between ($_{11}Na$) and ($_{17}Cl$) (regarding the formed bond).
3. Putting a red litmus paper in sodium hydroxide and another one in hydrochloric acid.
4. Occurrence of lightning and thunder (regarding to arrangement and why).

B Mention one importance of :

1. Ultraviolet rays.
2. Safety belts.
3. Electromagnet.
4. X-rays.

Question 4

A Write the scientific term :

1. The compounds that are formed due to reaction between oxygen & metal or nonmetal.
2. The number of electrons gained, lost or shared during a chemical reaction.
3. The device that changes electric energy into mechanical energy.
4. The area on Earth at which gravitational force decreases.
5. A radical which consists of one nitrogen atom and three oxygen atoms.

B Put (✓) or (✗) :

1. Movement of simple pendulum is an example of circular motion. ( )
2. ($_{19}K$) is a metallic element. ( )
3. Covalent bond always forms compounds only. ( )
4. X-rays have thermal effect. ( )
5. The positive ion is called so, because number of positive protons is more than that of electrons. ( )
6. Gamma rays have medical uses. ( )
7. Evolving of (O_2) is a sign to differentiate between sandstone and limestone when hydrochloric acid is added to them. ( )
8. Pushing a wall is an improper force. ( )
9. The valency of zinc is 1. ( )

PART 3

Additional questions

A Correct the underlined words :

1. Inner planets are gaseous bodies.
2. Microscopes are used for identifying the celestial bodies.

B Give a reason for :

The object weight is changed from a planet to another.

12 Alexandria Governorate — Middle Educational Directorate

Answer the following questions :

Question 1

A Write the scientific term of the following :

1. Elements don't lose or gain any electrons during the chemical reaction.
2. A set of joined atoms behave as one atom during the chemical reaction.
3. It is an effect that changes the object phase from static to motion or vice versa, or changes the motion direction.
4. The motion of an object in which its position is changed relative to a fixed point.
5. A gas which is very important to decrease the effect of oxygen in burning processes in air.
6. A type of rocks resulted from fragmentation, transportation and deposition.

B If the Earth's gravitational acceleration in a place is 10 m/sec^2, find the mass of a body its weight is 50 newton.

C Complete the following table :

Name of compound	Chemical formula	Number of atoms in the molecule	Number of elements in the molecule
Calcium sulphate			....
....	$CuCO_3$		....

Question 2

A Correct the underlined words :

1. On burning magnesium strip in the presence of oxygen a **black** powder is formed.
2. Sulphur oxides are acidic gases affect the **nervous** system.

3. The electric generator converts the **heat** energy into an electric energy.
4. The inner core of Earth is rich in iron and **aluminium**.
5. The mantle is the **fourth** layer of Earth.
6. **Olivine, pyroxene** and feldspar are main minerals forming granite rock.

B **Mention one use for the following :**

1. Infrared rays.
2. X-rays.
3. Strong nuclear force.
4. Ozone layer.

C **Give reasons for the following :**

1. Lubricating and oiling mechanical machines.
2. Steadfastness of hydrosphere on Earth's surface.

Question 3

A **Complete the following statements :**

1. $2CO + O_2 \xrightarrow{\Delta}$ ....
2. In chemical reaction the total masses of reactants is .... the total masses of products.
3. The electromagnet is used in making ....
4. The outer layer of Earth is called ....
5. Regarding to the distance from the Sun, the Earth is in the .... order.
6. The volcanic igneous rocks formed from the .... flow in Earth's surface.

B **Compare between the following :**

1. Ionic bond and covalent bond (concerning the definition).
2. Sound waves and light waves (concerning the type of waves).

C **What happens in the following cases and why ... ?**

1. Approaching a wet rod with hydrochloric acid to ammonia gas (ensure your answer by chemical equation).
2. The passengers don't use safety belts in cars.

Question 4

A **Choose the correct answer :**

1. When an acid dissolves in water it produces .... ions.
   a. H^- b. H^+ c. $(OH)^-$ d. $(OH)^+$
2. (Al_2O_3) is from ....
   a. bases. b. salts. c. metal oxides. d. nonmetal oxides.

PART 3

3. From the examples of forces inside living systems : ....

a. pulse inside blood vessels. b. centrifugal forces.

c. brakes. d. all the previous.

4. Marble is resulted from the transformation of ....

a. igneous rocks. b. limestone.

c. sandstone. d. feldspar.

5. The plutonic igneous rocks have .... sized mineral crystals.

a. equal b. small c. medium d. large

6. The Earth layer which formed from molten metals is ....

a. mantle. b. outer core. c. inner core. d. core.

B Mention one example for :

1. A salt doesn't dissolve in water.
2. Circular motion.
3. Igneous volcanic rock.

C Write down the electronic configuration for the following elements $_{11}X$ and $_{17}Y$ then answer :

1. Mention the type of element for each one.
2. Mention the type of ion for each one.

Additional questions

A Choose the correct answer :

1. Comets, asteroids and meteors revolve around ....

a. the Sun. b. Jupiter. c. the Moon. d. the Earth.

2. The outer planets consist of some elements such as helium and hydrogen in .... state.

a. liquid b. gaseous c. molten d. solid

B What happens when ... ?

A huge solid rocky mass penetrates the atmosphere.

13 El-Qalyuobia Governorate — Memphis Language School

Answer the following questions :

Question 1

A Complete the following statements :

1. Sedimentary rocks are formed as a result of erosion , ... and ....

2. The force of gravity between two objects depends on .... and .... between them.
3. The bond in hydrogen molecule is a .... bond, while the bond in nitrogen molecule is a .... bond.
4. Electric generator changes .... energy into .... energy.
5. Waves are divided into two types, which are .... waves and .... waves.

B Problem :

An object, whose mass is 10 kg, calculate its weight knowing that the gravitational acceleration is 9.8 m/sec^2.

C Give reasons for :

1. Policemen advise divers to use safety belts in cars.
2. A chemical equation should be balanced.
3. Earth's inner core is rich in iron and nickel.
4. The presence of life on the surface of Earth planet only.

Question 2

A Write the scientific term :

1. A type of nuclear forces used in medicine and scientific researches.
2. An atom that doesn't give or gain any electron.
3. A molten material exists at depths beneath the crust.
4. Breaking the reactants bonds and forming new ones among the products.
5. A formula represents the number and the type of atoms in molecule.

B Compare between :

Metals and nonmetals.

C Write the chemical formula of the following compounds :

1. Silver chloride. 2. Sulphur trioxide. 3. Sodium sulphate.
4. Aluminium oxide. 5. Nitric acid.

Question 3

A What happens when ... ?

1. There is no atmosphere.
2. An atom loses one electron or more.
3. A moving bus stops suddenly.

PART 3

B Knowing that the mass of carbon (C) = 12 and oxygen (O) = 16, find the total masses of reactants and products through the following reaction :

$$C + O_2 \longrightarrow CO_2$$

C Indicate using symbolic equations, an example for the types of direct combination reaction between :

1. An element with another element.
2. An element with a compound.
3. A compound with another compound.

Question 4

A What is meant by ... ?

1. Valency. 2. Inertia. 3. Igneous rock.

B Put (✓) or (✗) and correct the wrong ones :

1. When ammonia gas reacts with hydrochloric acid, white powder is formed. ( )
2. Electromagnet converts the heat energy into electric energy. ( )
3. Simple pendulum motion is a wave motion. ( )
4. Fresh water represents 3% of the total volume of water on the Earth. ( )
5. Force is an attraction amount of the Earth to the body. ( )

C Mention the importance of :

1. Nitrogen gas. 2. Electromagnet. 3. Ozone layer.

Additional questions

A Complete the following statements :

1. The most famous comet is .... and it completes one rotation around the .... every 76 years.
2. The biggest planet in volume is .... and the nearest planet to the Sun is ....

B Write the scientific term :

1. The region which separates between the group of the inner planets from that of the outer planets.
2. Small space bodies that are affected by the planet's gravity.

14 El-Sharkia Governorate — Omar Al-Farouk Lang. School

Answer the following questions :

Question 1

A Complete the following :

1. The type of bond in hydrogen molecule is .... bond, while in nitrogen molecule is .... bond.
2. Limestone changes into marble when exposed to high .... and ....
3. Ground water exists in the .... of the rocks that form the Earth's mass.
4. Example of vibrating motion is ...., while transitional motion is .... motion.
5. $2CO + O_2 \xrightarrow{\Delta}$ ....

B Write the electronic configuration of : $_{17}Cl$, $_{18}Ar$

Then indicate :

1. The type of each atom. (metal , nonmetal , noble)
2. The type of each ion. (positive , negative , no ion)

C Mention the importance of the following :

1. The ozone layer.
2. Ultraviolet rays.
3. Strong nuclear forces.

Question 2

A Write the scientific term :

1. Natural solid material exists in the Earth's crust and it is formed of one mineral or a group of minerals.
2. The force of the Earth's gravitational to an object.
3. Breaking the reactants bonds and forming new ones among the products.
4. The number of electrons that an atom gains, loses or even shares during a chemical reaction.
5. The layer of the Earth that lies beneath the Earth's crust.

B Compare between each two of the following :

1. The Earth's outer core and inner core (according to structure and thickness).
2. Electric generator and electric motor (according to energy transformations).
3. Plutonic rocks and volcanic rocks (according to formation and example).

PART 3

C **Write the chemical formula of the following compounds :**

1. Sulphur trioxide. 2. Ammonium carbonate. 3. Aluminium sulphate.

Question 3

A **Give reasons for :**

1. Noble elements don't need a chemical combination with any other atoms.
2. Policemen advise drivers to use safety belts in cars.
3. Temperature on the Earth's surface suits the life of living organisms.
4. We see lightning before hearing thunder.

B **Find the total masses of reactants and products through the following reaction :**

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$ (knowing that the mass of : Mg = 24 and O = 16).

C **Show by a diagram :** How two atoms of oxygen ($_8O$) are bonded to form oxygen molecule (O_2).

Question 4

A **Choose the correct answer :**

1. .... are used in night vision devices.
   a. Gamma rays b. X-rays c. Ultraviolet rays d. Infrared rays
2. .... oxides are resulted during time of lightning.
   a. Carbon b. Sulphur c. Fuel d. Nitrogen
3. The car brake is one of the applications of .... forces.
   a. inertia b. nuclear c. gravitational d. friction
4. The normal atmospheric pressure equals .... cm.Hg.
   a. 76 b. 67 c. 70 d. 72
5. The number of the Earth's layers are ....
   a. 3 b. 5 c. 2 d. 1
6. The measuring unit of force is ....
   a. newton b. kilogram. c. metre/sec^2. d. metre/sec.

B **How can you differentiate between each of the following :**

1. Sandstone and limestone. [by adding (HCl) for each one].
2. Potassium sulphate salt and lead sulphate salt (by adding water for each one).

C **Calculate the mass of an object its weight is 980 newton and the Earth's gravity is 9.8 m/sec^2.**

Additional questions

A Choose the correct answer :

1. .... emit large amounts of heat and light.
   a. Stars b. Galaxies c. Planets d. Moons
2. The distance between stars are measured in .... unit.
   a. metre b. kilometre c. newton d. light year

B Give reasons for :

The stars seem as light points although they are huge.

15 El-Menofia Governorate — Quesna Educational Directorate

Answer the following questions :

Question 1

A Complete the following :

1. (NaCl) has .... bond while (HCl) has .... bond.
2. The motion of simple pendulum is .... motion while the motion of train is .... motion.
3. The electric motor changes .... energy into .... energy.
4. The .... layer protects living organisms from harmful .... rays.
5. The Earth consists of 3 main layers .... , ... and ....

B If the Earth's gravity acceleration in a place (9.8 m/sec^2) find the weight of (0.3 kg) mass ball.

C Knowing that the mass of (Mg) = 24 and the mass of (O) = 16 find the total masses of reactants and products in the reaction : $2Mg + O_2 \longrightarrow 2MgO$

Question 2

A Put (✓) or (✗) :

1. The Earth's inner core is rich in iron and aluminium. (   )
2. Water waves is mechanical waves. (   )
3. Fresh water is 4% of the total water on the Earth. (   )
4. The metamorphic rocks formed only by high temperature. (   )
5. The normal atmospheric pressure is 70 cm.Hg. (   )

PART 3

B Complete the following equations and determine the type of the reaction :

1. $C + O_2 \longrightarrow$ .... 2. $NH_3 + HCl \longrightarrow$ ....

C Write the formula of :

1. Sodium oxide. 2. Copper sulphate. 3. Calcium carbonate.

D Write the type of each compound :

1. SO_3 2. $PbSO_4$ 3. $Ca(OH)_2$ 4. HNO_3

Question 3

A Choose the correct answer :

1. The Earth's gravitational acceleration is changed from place to another because of ....
   a. object's mass. b. temperature. c. the distance from the Earth's centre.
2. The marble rock is considered from .... rocks.
   a. igneous b. sedimentary c. metamorphic
3. The car brake performance is application of ....
   a. attraction force. b. friction force. c. nuclear force.
4. .... is an oxide which causes building corrosion.
   a. MgO b. SO_2 c. CaO
5. The gas which reduces the effect of oxygen in burning process is ....
   a. CO_2 b. N_2 c. H_2O

B Give reasons for :

1. Policemen advise drivers to use safety belts in cars.
2. The presence of life of surface of the Earth. (4 points)

Question 4

A Write the scientific term :

1. The distance covered by an object in a unit time.
2. The chemical compound is produced from combination of its elements by constant weight ratios.
3. A motion which is repeated in equal periods of time.
4. The property of an object that has to resist the change of its phase of rest or motion.
5. The chemical bond which arises between two nonmetal atoms, where each atom shares the other atom with three electrons.

B Write one application to each of :

1. Gamma rays. 2. Weak nuclear force. 3. Ultrasonic waves. 4. Lubricants.

Additional questions

A **Put (✓) or (✗) in front of the following statements :**

1. The stars, planets and moons are celestial bodies. ( )
2. The celestial bodies are in a permanent motion according to the will of Allah. ( )
3. The Milky Way galaxy takes an oval shape with straight arms. ( )

B **Give reasons for :**

Astronomers do not measure the distance between stars in kilometres.

16 El-Gharbia Governorate — Kafr El-Zayaat Educational Directorate

Answer the following questions :

Question 1

A **Complete the following statements :**

1. The chemical reaction is the process in which bond existing in the reactants are .... and forming new bonds in the ....
2. Lubricating and oiling mechanical machines reduce .... between moving parts and prevent their ....
3. Electromagnet changes the .... energy into .... energy.
4. Thunder sound transfers in a form of .... waves, whereas lightning flask transfers in a form of .... waves.
5. The Earth's inner core contains .... and .... in a solid state.
6. Limestone consists of the precipitation of .... in .... solution.

B **Give reasons for each of the following :**

1. A sodium atom ($_{11}Na$) tends to form a positive ion, while oxygen atom ($_{8}O$) tends to form a negative ion.
2. The fan is going to turn after the electric current goes off.

C **Calculate the mass of reactants and products in the following reaction :**

$C + O_2 \xrightarrow{\Delta} CO_2$ [knowing that the mass of O = 16 & C = 12].

Question 2

A **Write the scientific term, which refers to each of the following statements :**

1. Compounds dissolved (dissociated) in water producing positive H^+ ions.

PART 3

2. An effect that attempts to change the object's phase from being static to motion or vice versa.
3. A motion which is regularly repeated in equal periods of time.
4. A technological application is used in cars and planes to stop the forces of inertia when a sudden change in motion occurs.
5. The layer of atmosphere, which protects the Earth and living organisms from the harmful ultraviolet radiations.
6. A natural solid material, that exists in the Earth's crust and it is formed of one mineral or a group of minerals.

B What is meant by ... ?

1. Nuclear force.
2. Metamorphic rocks.

C Two elements (X) and (Y), their atomic numbers are (11 and 17) respectively, answer the following questions :

1. Write the electronic distribution of each one.
2. Write the valency of each one. Give a reason.
3. What is the type of the compound produced due to their combination ?

Question 3

A Choose the correct answer :

1. When a nitrogen atom ($^{14}_{7}N$) gains electrons to complete its outermost shell, it becomes ....
   a. N^{-2} b. N^{-3} c. N^{+2} d. N^{+3}
2. An object's weight on the Earth's surface is related to .... force.
   a. electromagnetic b. weak nuclear c. strong nuclear d. gravitational
3. When a moving bus stoped suddenly, the passengers and the driver ....
   a. rushed backward. b. rushed forward. c. rushed left. d. rushed right.
4. When two cars move in the opposite direction with a velocity 60 km/h., the driver of the first car imagines that the second car moves with velocity .... km/h.
   a. zero b. 30 c. 60 d. 120
5. Regarding the volume, the Earth occupies the .... order (ascendingly) in the solar system.
   a. second b. third c. fourth d. fifth
6. All of the following are minerals, that form the basalt rock except ....
   a. mica. b. olivine. c. feldspar. d. pyroxene.

B What happens when ... ?

1. Burning of coal and cellulose fibres.
2. The magma comes out of the Earth's surface.

C Give one difference between :

1. O_2 and 2O.
2. The formation of the mantle layer and outer core layer.

Question 4

A Correct the underline words :

1. **Sulphur oxides** are poisonous acidic gases that affect the nervous system and the eye.
2. **The electric generator** converted the electric energy into a mechanical energy.
3. **X-rays** are used in sterilizing the sets of surgical operations rooms.
4. **Inertia** is the change in an object's position or direction as time passes in proportion to another object.
5. Plants use **carbon dioxide** gas to form protein.
6. Marble rock is **pink** if it is pure.

B Write the balance chemical equations representing the following reactions :

1. Reaction of ammonia gas and hydrochloric acid.
2. Reaction of nitrogen monoxide and oxygen.
3. Reaction of magnesium and oxygen.

C Calculate the weight of an object, if it's mass is 30 kg and the Earth's gravitational acceleration is 9.8 m/sec^2.

Additional questions

A What happens when ... ?

1. You look at the sky in a clear moonless night.
2. We can't invent the telescope.

B Choose the correct answer :

1. The distance covered by the light in one year is called ....
   a. astronomical unit
   b. light year.
   c. speed of light.
   d. kilometre
2. Astronomers measure the distances between stars with light year, because the stars ....
   a. generate great amounts of light and heat.
   b. are near from each other.
   c. are millions of kilometres away from us.
   d. seem as small light points.

PART 3

17 El-Dakahlia Governorate — Educational Directorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. All of the following are covalent molecules except ....
   a. H_2O b. MgO c. HCl
2. Car brake is one of the applications of .... force.
   a. friction b. nuclear c. inertia
3. The measuring unit of weight is ....
   a. kilometre. b. kilogram. c. newton.
4. .... is the two oxygen molecules.
   a. O_2 b. $2O_2$ c. 2O
5. .... is/are considered as mechanical waves.
   a. Infrared rays b. Visible light c. Sound waves
6. The valency of helium ($_2He$) is ....
   a. 0 b. 1 c. 2
7. From sedimentary rocks ....
   a. limestone. b. basalt. c. marble.

B Fill in the following table :

	Compound	Formula	No. of atoms	No. of elements
1	Lead iodide		3	....
2		$NaNO_2$		3

C What is the meant by ... ?

1. Inertia. 2. Chemical equation. 3. Transitional motion.

Question 2

A Problem :

If the Earth's gravitational acceleration is 10 m/sec^2. Find the weight in newton of 300 gm mass ball (1 kg = 1000 gm).

B Give reasons for :

1. The Earth is suitable for life.
2. Potassium ($_{19}K$) is monovalent, while ($_{8}O$) oxygen is divalent.

C Write the scientific term :

1. It is a motion which is regularly repeated in equal periods of time.
2. They are waves which spread in all media and free space like light.
3. Chemical bond arises between two nonmetals where each atom shares with two electrons.
4. They are used to sterilize the sets of surgical operations rooms.
5. It converts the mechanical energy into an electric energy.
6. Elements don't participate in any chemical reaction in ordinary conditions.
7. It is a resistance force originated between the object in motion and the medium touching it.

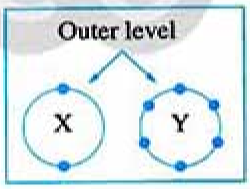
Question 3

A Put (✓) or (✗) :

1. The Earth locates in the third arrangement regarding the distance from the Sun. ( )
2. All nonmetals are bad conductors of electricity. ( )
3. Atmosphere contains ozone layer which protects us from harmful ultraviolet rays. ( )
4. Silver chloride (AgCl) dissolves in water. ( )
5. Lubricating and oiling reduce friction between moving parts. ( )
6. Acids change the colour of red litmus paper into blue. ( )
7. Hydrogen ($_{1}H$) is a metal as it has one electron in outermost energy level. ( )

B Study the opposite figure :

Two atoms (X) and (Y), the first contains two electrons in the third level, the second contains six electrons in the second level as shown. During the chemical reaction between (X) and (Y), a chemical bond is formed between them. Fill in the following table :



The type of (X) atom	The type of (Y) atom	Formula of the formed compound	The type of this bond
....			....

C Write the chemical equations representing the following :

1. Reaction of ammonia gas with hydrochloric acid.
2. Burning of carbon in presence of oxygen.
3. Heating magnesium ribbon in air.

PART 3

Question 4

A Problem :

Calculate the masses of reactants and products in the following reaction.

$HCl + NaOH \longrightarrow NaCl + H_2O$ [knowing that the mass of H = 1, Cl = 35.5 , Na = 23, O = 16].

B Fill in the following table :

	Atomic group	Formula	Valency
1	Bicarbonate		1
2		PO_4	3
3	Sulphate	SO_4	....

C Correct the underlined words :

1. **Fresh** water represents 97% and exists in oceans and seas.
2. **Bases** dissociate in water producing positive hydrogen H^+ ions.
3. (CO_2) is a **metal** oxide.
4. **Positive** ion is an atom of nonmetallic element that gains an electron or more.
5. Passengers are rushed **forward** when the car at rest moves forward suddenly.
6. **Mass** of an object is the Earth's ability to attract that object.
7. Electromagnet works on changing **heat** energy into magnetic energy.

Additional questions

Write the scientific term of each of the following :

1. Any body swims in the space as stars, planets, moons, rocky and gaseous bodies.
2. Large bodies seem as points in the sky emitting enormous amounts of heat and light.
3. The distance covered by light in one year.

18 Ismailia Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. .... gas reduces the effect of oxygen during burning.

2. During the chemical reaction, sodium atom ($^{23}_{11}Na$) .... one electron and changes into positive ion.
3. The work done to lift an object .... by increasing the object's mass.
4. Marble is resulted from the transformation of .... rock.
5. On dissolving in water, ... produce positive hydrogen ions.
6. Increasing the ratio of .... gas in air causes greenhouse phenomenon.
7. Friction causes a great loss of .... energy, as it is changed into heat energy.
8. .... are used in photographing bones.

B Give reasons for the following :

1. The crystals of minerals that form the plutonic igneous rocks are large in size.
2. Car passengers are rushed forward, when the car stopped suddenly.
3. We see lightning before hearing thunder, although both occur at the same time.
4. Temperature on the Earth suits the life of living organisms.

C Complete the following equations :

1. $2Mg + O_2 \xrightarrow{\Delta}$ ....
2. $2CO + O_2 \xrightarrow{\Delta}$ ....

Question 2

A Write the scientific term :

1. A layer in the Earth, which is rich in iron and nickel.
2. The number of electrons gained, lost or even shared by an atom during the chemical reaction.
3. A type of electromagnetic rays which have heat effect.
4. The molten material that exists at the depth under the curst.
5. An instrument used to change electric energy into mechanical energy.
6. Breaking bonds in reactants and forming new bonds in products.
7. A bond resulting from electric attraction between a positive ion and a negative ion.

B Compare between the following :

1. Mercury and bromine [according to the type of element (metal or nonmetal)].
2. Strong nuclear force and weak nuclear force [according to the use].

C Write the chemical formula for the following :

1. Aluminium oxide. 2. Sodium chloride. 3. Calcium sulphate.

PART 3

Question 3

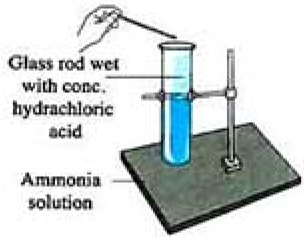
A Who am I ... ?

1. I am an igneous rock, consists of pyroxene, olivine and feldspar.
2. I am a type of compounds, turns litmus paper into blue.
3. I am a layer inside the Earth, consists of molten metals.

B Mention the importance or uses of the following :

1. Water in continuity of life (2 points are enough).
2. Gamma rays.
3. Friction force (1 point is enough).

C Examine the opposite figure, then answer :



1. What do you observe ?
2. Write the equation of this reaction.

D Find the weight of a ball which its mass = 0.5 kg if the gravity acceleration = 9.8 m/sec^2.

Question 4

A Choose the correct answer :

1. .... is an example of sedimentary rocks.
   a. Basalt b. Sandstone c. Granite d. Marble
2. The covalent bond happens between .... elements.
   a. two metallic b. two nonmetallic c. metal & nonmetal d. two inert
3. The Earth is characterized by the presence of suitable .... of about 76 cm.Hg.
   a. pressure b. temperature c. gravity d. hydrosphere
4. The amount of the Earth attraction force on an object is called ....
   a. weight. b. mass. c. centrifugal force. d. no correct answer.
5. The friction force is always in .... direction to motion.
   a. same b. opposite c. perpendicular d. parallel
6. .... oxides are resulted during lightning.
   a. Carbon b. Sulphur c. Nitrogen d. No correct answer

B What happens when ... ?

1. Burning of coal and cellulose fibres (concerning its effect on air).
2. Two oxygen atoms combine together (concerning the type of formed bond).
3. Adding (HCl) hydrochloric acid to limestone rock.

C Knowing that the mass of carbon (C) is 12 and oxygen (O) is 16 find the mass of reactants and products of the following reaction :

$C + O_2 \xrightarrow{\Delta} CO_2$

Additional questions

Complete the following statements :

1. Any body swims in the space is called ....
2. .... are large round bodies generating large amounts of heat and light.
3. The distance covered by the light in one year is called ....
4. The galaxy that our solar system belongs to is called .... or The Way of ....

19 Port-Said Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following statements :

1. On dissolving acids in water, they give .... ions, while on dissolving bases in water, they give .... ions.
2. .... rays are used in remote sensing instruments.
3. The .... layer in atmospheric air protects living organisms from the harmful rays.
4. $2CO + O_2 \xrightarrow{\Delta}$ ....
5. Granite is from .... rocks, but limestone is from .... rocks.

B Give reasons for :

1. The car passengers are rushed forward when the car stopped suddenly.
2. Nobel gases don't participate in chemical reactions under the ordinary conditions.
3. The presence of life on the surface of the Earth's planet only.

C Give one example for each of the following :

1. Mechanical waves.
2. An apparatus depends in its working on electromagnetic waves.
3. The metamorphic rocks.

PART 3

Question 2

A Choose the correct answer :

1. The car brake performance is an application of ....
   a. attraction forces. b. friction forces. c. centrifugal forces. d. forces of inertia.
2. The chemical formula of sulphuric acid is ....
   a. H_2O b. HCl c. H_2SO_4 d. HNO_3
3. All the following are periodic motions except the .... motion.
   a. fan b. pendulum c. train d. sunflower
4. The weight of the objects is measured in ....
   a. kilogram. b. coulomb. c. m/sec^2. d. newton.
5. The gases that cause building corrosion are ....
   a. nitrogen oxides. b. carbon dioxide. c. sulphur oxides. d. both (a) & (b).
6. The outer layer of the Earth is called the .... layer.
   a. crust b. mantle c. inner core d. outer core

B Calculate the mass of an object weight 98 newton (knowing the Earth's gravity = 9.8 m/sec^2).

C Define the following :

1. Negative ion.
2. Object's weight.
3. Acids.
4. Inertia.
5. The atomic group.

Question 3

A Write the scientific term for the following sentences :

1. It is an affect that attempts to change the object's phase from being static to motion or change the motion direction.
2. Elements have luster, are good conductors of heat and electricity and they contain 1, 2 or 3 electrons in their outermost shells.
3. A set of symbols and chemical formulae expressing the reactants and the products molecules in the chemical reaction.
4. A bond resulting from the electric attraction between a positive ion and a negative ion.
5. A very hot thick liquid which exists underneath the Earth's crust.
6. An atom of an element that doesn't give or lose any electrons.
7. The number of electrons gained, lost or even shared by an atom during a chemical reaction.
8. It is a natural solid material, that exists in the Earth's crust and it is formed of one mineral or a group of minerals.

B Compare between the following :

1. Transitional motion and periodic motion.
2. Electric generator and electric motor. 3. Acids and bases.

Question 4

A Put (✓) or (✗) and correct the wrong :

1. The Earth radius between the two poles is larger than that at the equator. ( )
2. Quartz mineral is the main compound in granite rock. ( )
3. The water bodies represent about 50 % of the Earth's surface. ( )
4. Oxides are substances that dissociated in water producing H^+ ions. ( )
5. Inner core layer of the Earth is rich in iron and nickel. ( )
6. When ammonia gas reacts with hydrochloric acid, white clouds is formed. ( )

B On a diagram show the electronic configuration to the atom of oxygen ($_8O$) then show how its two atoms are bonded to form oxygen molecule (O_2).

C What do you expect in the following cases :

1. When an electric current passes through an insulated copper wire coiling around a bar of soft iron.
2. Don't use the safety belts in cars.
3. Heating magnesium in air.
4. There is no atmosphere.

Additional questions

A Put (✓) or (✗) :

1. Reflecting and refracting microscopes are used for identifying the celestial bodies. ( )
2. The Sun is our planet in the solar system. ( )
2. There are eight spherical lightened planets revolve around the Sun. ( )

B Give reasons for :

No one can see Halley's comet more than two times in his life.

PART 3

20 Damietta Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following :

1. The bond in sodium chloride molecule is .... bond while the bond in water molecule is .... bond.
2. The force of gravity between two objects depends on .... and ....
3. The electric motor works on converting .... energy into .... energy.
4. On dissolving in water, acids give positive .... ions and alkalis give negative .... ions.
5. Electromagnet is used to make .... and ....

B Give difference between :

1. Plutonic and volcanic rocks.
2. Sandstone and limestone.

C Write the chemical formula for the following :

1. Magnesium oxide.
2. Aluminium hydroxide.

Question 2

A Write the scientific term :

1. The number of electrons that an atom gains, loses or even shares during chemical reaction.
2. The motion which is regularly repeated in equal periods of time.
3. Elements don't participate in chemical reactions under the ordinary conditions.
4. The property of an object resistance to change its state of rest or motion at a regular speed in a straight line unless an external force acted on it.

B Give one example of each of the following :

1. Metamorphic rocks.
2. Electromagnetic waves.

C Write the electronic configuration to the following atoms :

($^{24}_{12}Mg$) - ($^{35}_{17}Cl$) then indicate :

1. Type of ion.
2. Type of element.

Question 3

A Choose the correct answer :

1. Weight is measured in ....
   a. joule. b. newton. c. kilogram. d. richter.
2. All of the following are metals except ....
   a. iron. b. copper. c. oxygen. d. sodium.
3. The inner core of the Earth is a solid layer rich in ....
   a. sodium. b. aluminium. c. coal. d. iron.
4. Cars brakes idea is one of the applications of .... force.
   a. gravitational b. nuclear c. friction d. inertia
5. There are some examples of sedimentary rocks such as ....
   a. marble. b. basalt. c. granite. d. limestone.

B Knowing that the mass of carbon (C = 12) and oxygen (O = 16).

Find the total masses of reactants and products through the following :

$C + O_2 \xrightarrow{\Delta} CO_2$

C Define :

Force.

Question 4

A Give reasons for :

1. Temperature on the Earth's surface suits the life of living organisms.
2. Potassium ($_{19}K$) is monovalent while oxygen ($_{8}O$) is divalent.
3. We see lightning before hearing the thunder.
4. Car tyres are covered with a very coarse substance.
5. The bond in water molecule is a single covalent bond.

B Correct the underlined words :

1. The chemical formula for sodium chloride is **($NaCl_2$)**.
2. Green plants use **oxygen** gas during photosynthesis process.
3. **Chemical reaction** is a set of atoms joined together, behave like one atom, having its own valency and is not existed solely.
4. $NH_3 + HCl \xrightarrow{Conc.}$ **NH_4OH**

PART 3

Additional questions

A Complete the following statements :

1. The nearest planet to the Sun is .... and the farthest one from the Sun is ....
2. The biggest planet in volume is .... and the highest one in density is ....

B Write the scientific term :

1. Solidified masses of ice, gases and rock pieces revolve around the Sun.
2. The most famous comet which completes its revolution around the Sun each 76 years.

21 El-Behira Governorate — Ismail Elhabrouk Formal Language School

Answer the following questions :

Question 1

A Choose the correct answer :

1. The idea of machine lubrication depends on the lessening of the ....
   a. object's weight. b. inertia. c. friction force. d. gravity.
2. All of these are nonmetal oxides except ....
   a. CO_2 b. P_2O_5 c. SO_3 d. Al_2O_3
3. The solid layer in the Earth that rich in iron and nickel is ....
   a. crust. b. mantle. c. outer core. d. inner core.
4. The number of electrons in the outermost energy level in ($_{17}Cl$) is ....
   a. 17 b. 18 c. 8 d. 7

B Give reasons for :

1. The car passengers are rushed forward when the moving car stops suddenly.
2. Chemical equation should be balanced.
3. The crystals of the minerals that form the plutonic igneous rocks are large in size.
4. Ionic bonds produce compounds only not elements, but the covalent bonds produce both types, an element or even a compound.

C Write the chemical formula for each of the following :

1. Copper nitrate. 2. Caustic soda.
3. Calcite. 4. Sulphoric acid.

Question 2

A Complete the following :

1. Burning cellulose fibres causes .... but carbon monoxide causes ....
2. Sandstone belongs to .... rocks, while marble belongs to .... rocks.
3. Electric motor changes .... energy into .... energy.
4. .... layer of atmosphere protects living organisms from .... rays.

B What happens in each of the following ... ?

1. Increasing of (SO_2) and (SO_3) in air (concerning building).
2. Limestone rocks subjected to high temperature and pressure.

C Knowing that the mass of magnesium = 24 and oxygen = 16. Find the total masses of reactants and products through the following reaction :

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$

Question 3

A Write the scientific term for each of the following :

1. The number of electrons gained, lost or even shared by an atom during a chemical reaction.
2. The motion which is regularly repeated in equal periods of time.
3. Compound is produced from a chemical combination of its elements by constant weight ratios.
4. A rock formed of lava flows when it comes on the Earth's surface.

B Write the balanced symbolic chemical equations which represent :

1. Burning a piece of coal in air.
2. Reaction between ammonia and concentric hydrochloric acid.

C The following figures represent the electronic configuration for the outermost energy level of four atoms of elements, their electrons revolve in two energy levels.



a. b. c. d.

Answer the following :

1. What is the element which its valency is monovalent ?
2. What is the element which considered from nonmetals ?
3. What is the element whose nucleus contains 3 protons ?

PART 3

Question 4

A Mention one application for each of the following :

1. Infrared rays.
2. Useful effect of chemical reactions.
3. X-rays.
4. Strong nuclear force.

B The weight of an object on a planet is 32 N and on the Earth is 80 N. What is the gravitational acceleration on this planet. Knowing that the gravitational acceleration on the Earth is 10 m/sec^2.

C Show by drawing : The combination between two hydrogen atoms to form hydrogen molecule and indicate the type of bond.

Additional questions

A Give reasons for :

1. Sometimes, we see some luminous lines in the sky at clear nights.
2. The object weight is changed from a planet to another.

B Put (✓) or (✗) :

1. The paths of planets lie on one plane perpendicular to the Sun's axis of rotation around itself. ( )
2. The small or inner planets are Mercury, Venus, Earth and Saturn. ( )

22 Fayoum Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following :

1. The .... layer in the atmospheric air protects living organisms from the harmful rays.
2. The Earth consists of a number of arranged layers from the surface to the centre : the crust, ... and ....
3. The chemical formula of hydrochloric acid is .... but the chemical formula of sodium hydroxide is ....
4. The bond in magnesium oxide molecule is ...., but the bond in molecule of water is ....

5. .... rays are used in remote sensing instruments.

6. Granite is from .... rocks but limestone is from .... rocks.

B Define :

1. Positive ion. 2. Periodic motion.

C Write the chemical equation representing the following reaction, then indicate the type of reaction :

The reaction between carbon monoxide with oxygen.

Question 2

A Correct the underlined words in the following statements :

1. Inner core of the Earth is rich in iron and **aluminium**.
2. Quartz, feldspar and **olivine** minerals are main compounds in granite rock.
3. **Mass** is an attraction force of the Earth to a body.
4. Electric generator (dynamo) converts the **heat** energy into electric energy.
5. **Oxides** are substances that dissociate in water producing positive hydrogen ions.
6. When **oxygen** gas reacts with hydrochloric acid, white clouds is formed.

B Give one example for each of the following :

1. The igneous volcanic rock.
2. Mechanical waves.
3. Nonmetal liquid element.
4. Salt dissolves in water.

C Mention one application for each of the following :

1. Visible light. 2. Ultraviolet rays.

Question 3

A Write the scientific term for each of the following statements :

1. Elements don't participate in chemical reactions under the ordinary conditions due to the completeness of their outermost energy levels with electrons.
2. It is the motion of an object in which its position is changed relative to a fixed point.
3. It is any natural material that exists in the Earth's crust and is formed of one mineral or a group of minerals.
4. The number of electrons gained, lost or even shared by an atom during a chemical reaction.
5. Breaking of the existing bonds in the reactants molecules and forming of new bonds in the products molecules.

PART 3

B Choose the correct answer to complete the following statements :

1. Oxygen is from ....
   a. acids. b. bases. c. metallic elements. d. nonmetallic elements.
2. The idea of machine lubrication depends on the decreasing of the ....
   a. object's weight. b. inertia. c. friction force. d. gravity.
3. Which of the following is considered as a circular motion ....
   a. fan motion. b. pendulum motion.
   c. car motion. d. sunflower plant motion.
4. The metamorphic rock is produced as a result of the effect of the heat and pressure on the ....
   a. igneous rocks only. b. sedimentary rocks only.
   c. metamorphic rocks only. d. igneous & sedimentary rocks.
5. Water bodies on the Earth's surface form the percentage of ....
   a. 50 % b. 71 % c. 40 % d. 30 %

C What would happen in each of the following ... ?

1. Carbon burning in the presence of oxygen (write the equation).
2. The car stops suddenly.

Question 4

A Give reasons for :

1. We see lightning before hearing thunder.
2. Burning of coal and cellulose has bad effects.
3. The presence of life on the surface of the Earth's planet only.

B Problem :

Calculate the mass of an object weights 98 newton (knowing the Earth's gravity = 9.8 m/sec^2).

C Compare between : Limestone and sandstone (according to main mineral).

D Write down the electronic configuration of the atoms of the following elements ($_{12}$Mg) – ($_{18}$Ar) then indicate :

1. The type of each atom (metal – nonmetal – noble gas).
2. The type of each ion (positive – negative – no ion).

Additional questions

Complete the following statements :

1. The comet consists of two parts, which are .... and ....
2. The head of the comet consists of a mixture of solidified gases of carbon dioxide, ... and .... gases and other components.
3. Telescopes are used for identifying the ....
4. The most famous comet that the inhabitants of the Earth could observe is .... and it completes its revolution around the Sun every .... years.

23 Assiut Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. .... rays are used in remote sensing instruments.
2. Ground water exists in the .... of the rocks that forming the Earth's mass.
3. $2CO + O_2 \xrightarrow{\Delta}$ ....
4. In the periodic motion, the motion is ....
5. The Earth's inner core is rich in .... and ....
6. $NH_3 + HCl \longrightarrow$ ....
7. From the examples of forces inside living organisms is pulse inside ....

B Calculate the mass of an object, its weight is 96 newton (knowing that the Earth's gravity acceleration = 9.6 m/sec^2).

Question 2

A Write scientific term :

1. A bond resulting from the participation of each of the 2 atoms with 3 electrons.
2. The property of an object that has to resist the change of its state of rest or motion at a regular speed unless a force effects on it.
3. The number of electrons gained, lost or even shared by an atom during chemical reaction.
4. An atom of an element doesn't lose or gain any electrons.
5. An object position changes with the time passes from its an initial position to a different final one.

PART 3

6. A rock formed of lava flows when it comes on the Earth's surface.

7. The force of the Earth's attraction to an object.

B The following formulae represent some molecules, name each one :

1. $NaNO_3$ 2. $Al_2(SO_4)_3$ 3. $CaCO_3$

C Which of the following rocks is sedimentary, igneous or metamorphic ?

1. Granite. 2. Sandstone.
3. Marble. 4. Basalt.

Question 3

A Choose the right answer :

1. The gas which responsible for the greenhouse effect is .... gas.
   a. CO_2 b. SO_2 c. NO_2 d. CO
2. Water masses on the Earth's surface form about ....
   a. 30 % b. 50 % c. 71 % d. 90 %
3. The idea of mechanism of lubricant depends on decreasing of .... force.
   a. friction b. inertia c. gravity d. nuclear
4. Regarding the volume, the Earth occupies the .... order (ascendingly) in the solar system.
   a. fifth b. fourth c. third d. eighth
5. All the following are periodic motion except .... motion.
   a. fan b. pendulum c. train d. water wave
6. .... are used in examination of bone.
   a. Gamma rays b. Ultraviolet rays c. X-rays d. Infrared rays

B Knowing that the mass of carbon (C = 12) and oxygen (O = 16) find the total masses of reactants and products through the following reaction :

$$C + O_2 \xrightarrow{\Delta} CO_2$$

C Compare between :

1. Electric generator and electric motor.
2. The crust and the mantle.

Question 4

A Give reasons for :

1. Potassium ($_{19}K$) is monovalent where oxygen ($_8O$) is divalent.
2. Effervescence takes place when hydrochloric acid is added to a sample of limestone.
3. We receive the sunlight at the same time we don't hear the sound of solar explosions.

B Write the chemical formula for the following molecules :

1. Magnesium oxide. 2. Calcium chloride.
3. Sulphuric acid. 4. Aluminium hydroxide.

C What do you mean by ... ?

1. Chemical reaction. 2. Rock.
3. Relative motion. 4. Acids.

Additional questions

A What happens when ... ?

1. A large asteroid penetrates the Earth's atmosphere.
2. Friction of meteors with the Earth's atmosphere.

B Complete the following :

1. The belt of the wanderer asteroids separates between the orbits of .... and .... planets.
2. The luminous arrows, that can be seen in the sky at clear nights are called ...., while the large rocky masses, that don't burn up completely and fall on the Earth are called ....

24 Sohag Governorate — El-Balina Educational Directorate

Answer the following questions :

Question 1

A Complete the following statements :

1. The bond in sodium chloride molecule is .... bond whereas the bond in water molecule is .... bond.
2. Sedimentary rocks are formed as a result of .... , ... and ....
3. Waves are divided into two types which are .... waves and .... waves.
4. The .... layer in the atmospheric air protects living organisms from the harmful rays.

B Write the chemical formula for the following molecules :

1. Sodium sulphate. 2. Copper nitrate.
3. Calcium chloride. 4. Aluminium hydroxide.

PART 3

C What's meant by ... ?

1. Valency.
2. The ion.

Question 2

A Write the scientific term :

1. A formula represents the number and types of atoms in a molecule.
2. The force of the Earth's attraction to an object.
3. A natural solid material that exists in the crust and consists of one mineral or a group of minerals.
4. A movement repeated regularly in equal intervals of time.

B Give reasons for :

1. A chemical equation should be balanced.
2. Gravitational acceleration is change on the Earth's surface from place to another.
3. Effervescence takes place when hydrochloric acid is added to a sample of limestone.
4. Policemen advise drivers using safety belts in cars and planes.

Question 3

A Choose the correct answer :

1. Electromagnet is used in making the .... set.
   a. calculator b. electric bell c. microscope d. night vision
2. All the following are electromagnetic waves except for the ....
   a. thermal rays. b. visible light. c. sound waves. d. ultraviolet rays.
3. Regarding the volume, the Earth occupies the .... order (ascendingly) in the solar system.
   a. fifth b. fourth c. third d. eighth
4. All of the following are metals except ....
   a. iron. b. oxygen. c. copper. d. sodium.

B Mention the main minerals that share in structure of the following rocks :

1. Granite.
2. Limestone.

C Calculate the mass of an object, if its weight is 280 newton, knowing that the Earth's gravitational acceleration is 10 m/sec.

Question 4

A Write the chemical equations representing the following reactions :

1. The reaction between carbon monoxide with oxygen.
2. Hydrochloric acid is combined with ammonia gas.

B Correct the underlined words :

1. Electric generator converts the **heat** energy into electric energy.
2. The water bodies represent about **50 %** of the Earth's surface.
3. **Infrared rays** used in photographic cameras.
4. **Oxides** are substances that dissociate in water producing positive hydrogen ions.

Additional questions

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Galaxy 2. Light year 3. Telescope 4. The belt of the wanderer asteroids	a. measures the distances between stars. b. is the greatest universe unit. c. separates the outer planets from the inner planets. d. explores the space.

B Choose the correct answer :

Halley's comet completes its orbit around the Sun each ....

a. 68 years. b. 76 years. c. 76 months. d. 21 years.

25 Luxor Governorate — Educational Directorate

Answer the following questions :

Question 1

A Complete the following statements :

1. Electric motor changes .... energy into .... energy.
2. The bond in (NaCl) molecule is .... bond, while the bond in (N_2) molecule is .... bond.
3. Waves are divide into two types which are .... waves and .... waves.
4. On dissolving in water, acids give .... ions and alkalis give .... ions.
5. Granite belongs to .... rocks, while marble belongs to .... rocks.

B Give one function (importance) for each of the following :

1. The Earth's gravity.
2. Electromagnet.

PART 3

Question 2

A Write the scientific term :

1. It is the number of electrons that an atom gains, loses or even shares during a chemical reaction.
2. The chemical compound that is produced from combination of its elements by a constant weight proportions.
3. A sedimentary rock which has the same chemical structure of marble.
4. The change in object's position or direction as the time passes relative to a fixed point.

B Write the chemical formula for the following molecules :

1. Magnesium oxide : ....
2. Copper nitrate : ....
3. Sodium sulphate : ....

C If the Earth's gravitational acceleration in a place is 9.8 m/sec^2. Find the weight of an object its mass is 50 kg .

Question 3

A Choose the correct answer :

1. All of the following are metals except ....
   a. iron. b. oxygen. c. copper. d. sodium.
2. Water covers about .... of the Earth's surface.
   a. 50 % b. 71 % c. 40 % d. 30 %
3. The gases that cause buildings corrosion is/are ....
   a. nitric oxide. b. carbon dioxide. c. sulphur oxides. d. nitrogen oxides.
4. .... waves are an example of mechanical waves.
   a. Water b. Light c. Radio d. Ultraviolet

B Give reasons for :

1. The fan is going to turn after the electric current goes off.
2. The bond in an oxygen molecule is a double covalent bond.

C Knowing that the mass of carbon (C = 12) and oxygen (O = 16) .Find the total masses of reactants and products through the following reaction :

$C + O_2 \longrightarrow CO_2$

Question 4

A Correct the underlined words :

1. Weak nuclear forces are used in **military purposes**.
2. The common name of sodium **hydroxide** is table salt.
3. The outer layer of the Earth is called **the mantle**.
4. The chemical formula of nitric acid is (H_2SO_4).
5. **Gamma ray** is used in photographic cameras.
6. The thickness of the outer core is about **2885 km**.

B Write the chemical equation representing following reactions :

1. Hydrochloric acid is combined with ammonia gas.
2. Reaction of nitrogen monoxide and oxygen.

C What happens when ... ?

1. Absence of ozone layer in atmosphere.
2. The heart muscle contracts and relaxes.

Additional questions

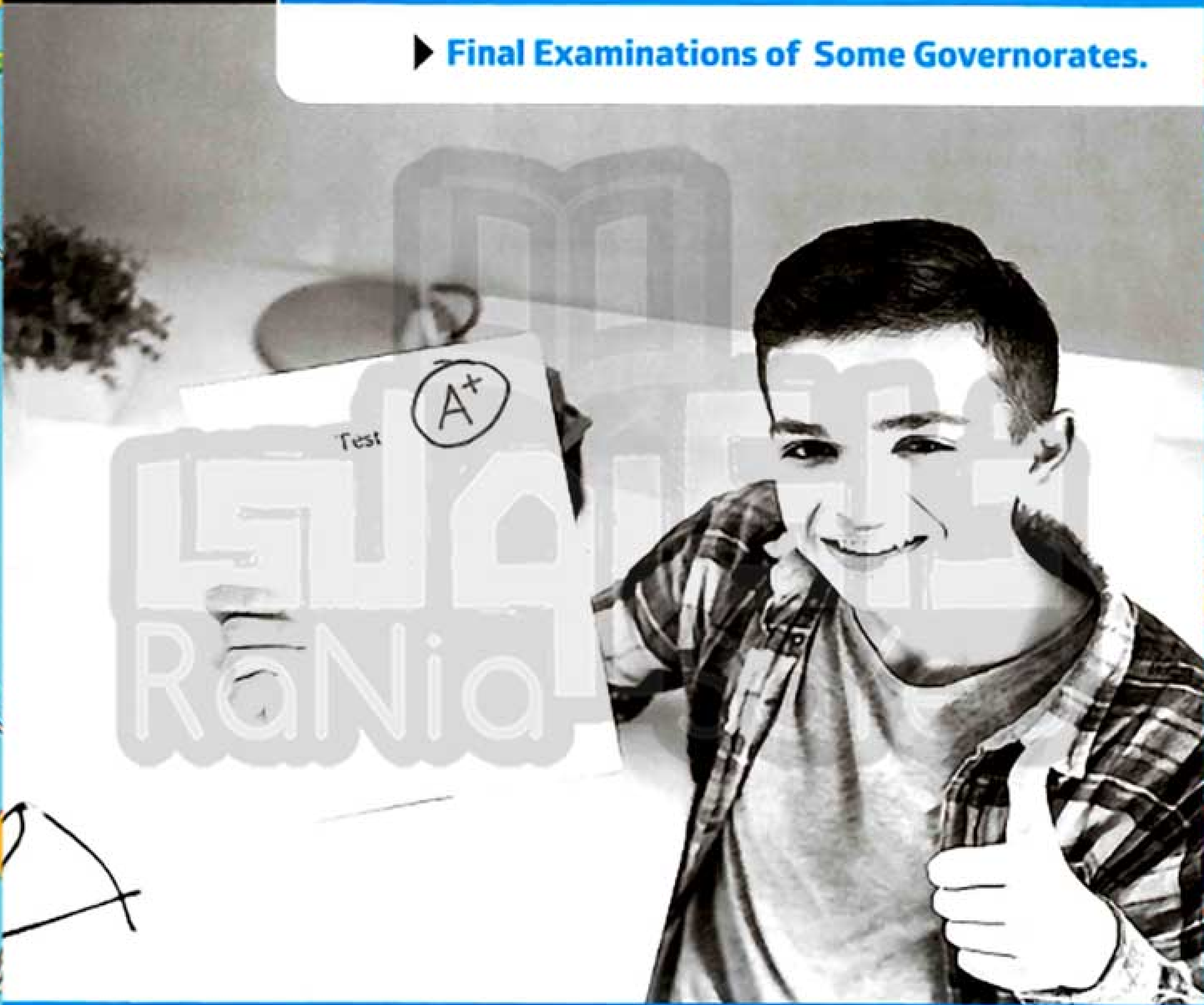
Choose the correct answer :

1. The nearest two planets to the Earth are ....
   a. Mercury and Venus. b. Venus and Mars.
   c. Mars and Jupiter. d. Mars and Mercury.
2. The nearest planet to the Sun is ....
   a. Earth. b. Mercury. c. Neptune. d. Jupiter.
3. The farthest planet from the Sun in the solar system is ....
   a. Neptune. b. Uranus. c. Mercury d. Venus.

PART 3

Final Examinations

▶ Final Examinations of Some Governorates.



Important notes :

- In view of the absence of final examinations for the second term of the academic year 2019 – 2020, therefore the final examinations were put in place for the second term of the previous year.
- Questions signed by "✲" have been added to the final examinations to appropriate the syllabus of the second term of the current academic year 2020 – 2021.

PART 3

1 Cairo Governorate

East Nasr City Educational Directorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. Earth's gravitational acceleration is changed from a place to another on Earth's surface because of ....
   a. object's mass. b. Earth's mass.
   c. the distance from the Earth's centre.
2. Planets revolve around the Sun in .... paths.
   a. circular b. elliptical c. spiral
3. The car brake performance is an application of ....
   a. gravitational forces. b. friction forces. c. centrifugal forces.
4. The chemical formula of sulphuric acid is ....
   a. HNO_3 b. H_2SO_4 c. HCl
5. There is a single covalent bond in .... molecule.
   a. hydrogen b. nitrogen c. oxygen
6. All of the following are periodic motions except the ....
   a. fan. b. pendulum. c. train.
7. * The volcanic flows is known as ....
   a. magma. b. lava. c. core.

B Compare between each of the following :

1. An atom and an ion (The charge).
2. Meteors and meteorites (Definition).
3. Mechanical waves and electromagnetic waves (Example).

C Problem : If the Earth's gravitational acceleration in a place is 9.8 m/s², find the weight of 0.5 kg mass ball.

Question 2

A Write the scientific term of each of the following :

1. A system that consists of thousands of millions of stars.
2. A set of atoms joined together behave like one atom only, having a special valency and it can't be existed solely.

3. The motion which is regularly repeated in equal periods of time.
4. Breaking the reactants bonds and forming new ones among the products.
5. The ability of the Earth to attract an object to its centre.
6. Elements have luster, good conductors of heat and electricity, malleable and ductile and they contain 1,2 or 3 electrons in their outer electron shells.
7. The distance covered by light in one year.

B Mention the name of rays (or waves) which are used in each of the following :

1. Cooking food.
2. Examining mineral raws in industry.
3. Sterilizing the sets of surgical operations rooms.

C Identify the type of the following compounds :

1. H_2SO_4 2. MgO 3. NaCl 4. KOH

Question 3

A Put (✓) or (✗) :

1. The Earth's inner core is rich in iron and nickel. ( )
2. By increasing the ratio of CO_2, the air temperature decreases. ( )
3. Liquids transport through pores and the walls of cells from the higher concentration to the lower one. ( )
4. The biggest planet in the solar system is Jupiter. ( )
5. The force is measured in newton. ( )
6. Water covers about 50% of the Earth's surface. ( )
7. The head of the comet is considered icy sphere, while its tail is considered a gaseous cloud. ( )
8. Temperature on the Earth's surface suits the life of living organisms. ( )

B Complete the following equations :

1. $C + O_2 \xrightarrow{\Delta}$ ....
2. $2CO + O_2 \xrightarrow{\Delta}$ ....
3. $2Mg + O_2 \xrightarrow{\Delta}$ ....

C Give reasons for the following :

1. White clouds are formed when ammonia gas reacts with conc. hydrochloric acid.
2. The car passengers are rushed forward when the moving car stops suddenly.
3. The density of the outer planets is low.
4. * Limestone consists of mineral calcite.

PART 3

Question 4

A Complete the following statements :

1. The .... layer in the atmospheric air protects living organisms from harmful rays.
2. Green plants use .... gas in photosynthesis process.
3. The bond in an oxygen molecule is a .... bond, while the bond in a nitrogen molecule is a .... bond.
4. Electric motor works on changing .... energy into .... energy.
5. Acids change the colour of litmus paper into .... , while bases change the colour of litmus paper into ....
6. The nearest planet to the Sun is .... and the farthest one from the Sun is ....

B Mention the harm of :

1. Carbon monoxide.
2. Nitrogen oxides.

C Mention one use of each of the following :

1. Electromagnet.
2. Strong nuclear force.

2 Cairo Governorate

Zeiton Educational Zone
Saint Mary's Integrated Schools

Answer the following questions :

Question 1

A Write the scientific term :

1. A type of nuclear forces used in medicine and scientific researches.
2. It's a layer of molten metals with a thickness 2100 km.
3. The waves which are produced by the vibration of medium particles.
4. Compounds produced as a result of the combination of a positive ion with a negative ion except oxygen.
5. Oxides which help in building corrosion.

B Write the chemical formula of the following :

1. Ferric hydroxide.
2. Aluminium phosphate.
3. Calcium nitrate.

C If the Earth's gravitational acceleration at Earth's surface is 9.8 m/sec^2., and it becomes 9.2 m/sec^2. in a balloon at a height 200 km above the Earth's surface. Calculate the amount of decrease in the weight of a person, its mass 75 kg.

Question 2

A Choose the correct answer :

1. The outer planets consist of some elements such as helium and hydrogen in .... state.
   a. liquid b. gaseous c. molten d. solidified
2. The chemical formula of calcium bicarbonate is ....
   a. CaO b. $CaNO_3$ c. $Ca(HCO_3)_2$ d. $CaCO_3$
3. From forces enable living organisms to do biological operation ....
   a. pulse. b. friction. c. inertia force. d. all the previous.
4. The salt that is formed from combination of positive atomic group with negative atomic group is ....
   a. NH_4Cl b. $(NH_4)_2CO_3$ c. Na_2SO_4 d. NH_4Br
5. The water transports from soil to plants leaves by effect of .... force.
   a. gravity b. biological c. inertia d. friction

B Three elements (X, Y and Z) their atomic numbers respectively (17, 18 and 19) :

a. Which of them, its molecule is formed of 2 atoms.
b. What is the type of bond when element (X) combines with element (Z).
c. Does element (X) combine with element (Y) and why ?

C Correct the underlined words :

1. Gamma rays used in detecting the bone fractures.
2. Comet separates between inner and outer planets.
3. Acids dissolve in water to produce negative hydroxide ion.

Question 3

A Complete the following statements :

1. The outer layer in the Earth is called ...., while the inner layer is called ....
2. Motion is classified into two types, which are .... and ....
3. .... + ... $\xrightarrow{\Delta}$ 2MgO
4. Sound waves are example of .... waves, while light waves are example of .... waves.
5. The biggest planet in volume is .... and the highest one in density is ....
6. * .... and .... are examples of igneous rocks, while .... and .... are examples of sedimentary rocks.

PART 3

B What will happen if ... ?

1. Putting a wet glass rod with ammonia solution close to the opening of test tube has conc. hydrochloric acid.
2. Ozone layer is destroyed (absent).
3. * The magma comes out of the Earth's surface.

Question 4

A Give reasons for :

1. Ionic bond produces compounds only not elements, but covalent bonds produce both element and compound.
2. The car passengers are rushed forward when the moving car stops suddenly.
3. The density of the outer planets is low.

B Put (✓) or (✗) and correct the wrong ones :

1. The burning of carbon in presence of oxygen is a direct combination reaction. ( )
2. The weight of object decreases with increasing of its mass. ( )
3. Ultraviolet rays are used in examining and curing sets for human body. ( )
4. All nonmetals are solid except mercury. ( )

C Write one use :

1. Infrared rays. 2. Ultraviolet rays. 3. Nitrogen gas. 4. Electromagnet.

3 Cairo Governorate

New Cairo Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. The chemical bond in hydrogen molecule (H_2) is a .... , while the chemical bond in nitrogen molecule (N_2) is ....
2. Transitional motion isn't considered as periodic motion because it has .... and ....
3. The nearest planet to the Sun is ...., while the farthest planet from the Sun is ....
4. Electric generator changes .... energy into .... energy.
5. In the reaction : $2Mg + O_2 \xrightarrow{\Delta} 2MgO$
   a. The bond in oxygen molecule is broken to give ....
   b. The magnesium atom combines with .... atom to form .... molecule.

6. Green plants use .... gas in photosynthesis process.

7. The comet consists of two parts which are .... and ....

B ✻ Put (✓) or (✗), then correct the wrong ones :

1. The coloured marble is free from impurities. ( )

2. Basalt is a volcanic rock. ( )

Question 2

A Write the chemical formula for each of the following :

1. Sodium sulphate. 2. Aluminium oxide.

B If Earth's gravitational acceleration in a place is 9.8 m/s^2, find the weight of the following :

1. 0.3 kg mass ball. 2. 50 kg mass boy.

C Mention one application for each of the following :

1. Ultraviolet rays. 2. Sound waves.

Question 3

A Write the scientific term :

1. A set of atoms joined together, behave like one atom only, having a special valency and can't exist solely.
2. The biggest inner planet.
3. Resistant forces originate between the object in motion and the medium.
4. The motion which is regularly repeated in equal periods of time.
5. The only nonmetal that exists in a liquid state.
6. The force that accompanies the massive amount of energy and it is stored in the nucleus.
7. Compounds produced as a result of the chemical combination of a positive metal ion with a negative atomic group except oxygen.

B Two elements ($_8A$) and ($_{12}B$).

1. Which one is a metal and which one is a nonmetal ?
2. What is the kind of bond formed between them ?

C What happens in each of the following ... ?

1. Wet rod with ammonia gas is put close to conc. HCl
2. Kinetic energy of a dynamo increases.

Question 4

A Give reasons for :

1. CO_2 gas acts as a greenhouse effect.
2. Astronauts can't hear each other directly in space.
3. Earth's inner core is rich in iron and nickel.
4. Car tyres are covered with a very coarse substance.
5. We can obtain sodium chloride solution and not silver chloride solution.

B Choose the correct answer :

1. .... are used in night vision apparatus.
   a. Infrared rays b. Gamma rays c. Ultraviolet rays d. X-rays
2. The distances between stars are measured in .... unit.
   a. metre b. kilometre c. newton d. light year
3. All of the following are considered as periodic motions except the .... motion.
   a. Fan b. Pendulum c. Train d. Sun
4. An object's weight on Earth's surface is related to .... forces.
   a. electromagnetic b. weak nuclear c. gravitational d. strong nuclear

4 Cairo Governorate

Patriarchal College
Abdoon Educational Directorate

Answer the following questions :

Question 1

A Complete the following statements :

1. Sound and light are two forms of .... and they transfer from place to another in the form of ....
2. The acceleration due to gravity is the largest on .... planet, while it is the least on .... planet.
3. Strong nuclear forces are used in producing of .... and in .... purposes.
4. When an element ($_{11}X$) combines with oxygen, the symbol of the produced compound ....
5. From the benefits of friction, it ....
6. On dissolving in water, alkalis give .... ions, while acids give .... ions.
7. .... and .... are salts insoluble in water.
8. * Granite is from .... igneous rocks, while basalt is from .... igneous rocks.

B **Write the chemical formula, the number of atoms and the number of elements of each of the following (in a table) :**

1. Aluminium hydroxide.
2. Calcium nitrate.
3. Copper sulphate.
4. Ammonium carbonate.

C **What are the following numbers indicate :**

1. 22 km.
2. 3.3 to 5.5 gm/cm^3.
3. 7.77 m/sec^2.

Question 2

A **Write the scientific term :**

1. The region which separates between the inner and the outer planets.
2. A set of symbols and chemical formulae representing the reactants and products molecules in the chemical reaction.
3. The property of object resistance to change its state from rest or movement unless force affect on it.
4. Small rocky masses that burn up completely in the Earth's atmosphere.
5. The product of multiplying object's mass by Earth's gravity acceleration.
6. Breaking out the bonds between the molecules of reactants and formation of new bonds between the molecules of products.
7. The motion which is regularly repeated in equal periods of time.

B **Write the chemical equation that represents :**

1. Burning a piece of magnesium ribbon.
2. Reaction of ammonia with conc. hydrochloric acid.
3. Reaction of nitrogen monoxide with oxygen.

C **If you have the following elements : $_{11}A$, $_{17}B$ and $_{10}C$**

1. Which of these elements doesn't combine with the other elements ? (Give a reason)
2. Which elements combine forming ionic bond ?
3. Which of the previous elements can form a covalent bond ?

Question 3

A **Choose the correct answer :**

1. The average distance between the Earth and the Sun = ...
   a. 150×10^6 km. b. 150×10^5 km. c. 150×10^6 m. d. 50×10^6 km.
2. The celestial bodies that consist of head and tail are ....
   a. meteors. b. meteorites. c. comets. d. asteroids.

3. Car brakes are one of the applications of ....

a. gravitational force. b. nuclear force. c. friction force. d. inertia force.

4. All of the following are monovalent atomic groups except .... group.

a. nitrate b. bicarbonate c. phosphate d. nitrite

5. The layer which consists of molten metals is ....

a. crust. b. outer core. c. mantle. d. inner core.

6. The bar used in electromagnet is made of ....

a. isolated copper. b. steel iron. c. wrought iron. d. aluminium.

7. The Earth takes the .... position according to the size ascendingly.

a. fifth b. fourth c. third d. second

B Mention one application about the following :

1. X-rays. 2. Gamma rays. 3. Ultraviolet rays. 4. Infrared rays.

C Write the negative effects of the following :

1. Carbon monoxide. 2. Sulphur oxides. 3. Burning cellulose.

Question 4

A Give reasons for :

1. The Earth's inner core is rich in iron and nickel.
2. Steadfastness of the hydrosphere on the Earth's surface.
3. We see lightning before hearing thunder.
4. The bond in water molecule is a single covalent bond.
5. * Volcanic rocks contain small circular holes.

B Put (✓) or (✗), then correct the worng ones :

1. Both mercury and bromine exist in liquid state. ( )
2. Mantle layer lies beneath the Earth's outer core. ( )
3. Green plants use carbon dioxide gas in making protein. ( )
4. Electric generator converts heat energy into electric one. ( )
5. Sodium hydroxide changes the colour of litmus paper into red. ( )
6. Halley's comet revolves around the Sun in more elongated orbit every 80 years. ( )

C What will happen when ... ?

1. The car stops suddenly.
2. When an electric current passes through an insulated copper wire coiling around a bar of soft iron.
3. Burn a piece of magnesium ribbon.
4. Machines are not lubricated.

5 Cairo Governorate

Basatoon & Dar Al Salam Educational Administration

Answer the following questions :

Question 1

A Complete the following statements :

1. The bond in magnesium oxide molecule is ...., whereas the bond in water molecule is ....
2. The types of telescopes are .... and ....
3. The car passengers are rushed .... when the car stops suddenly by the effect of .... force.
4. Egypt seeks to use .... energy in producing electricity.
5. .... force prevents feet from slipping on road, while .... force helps in keeping the atmosphere around Earth.
6. The object's weight increases as the distance from Earth's centre ....

B Put (✓) or (✗) and correct the wrong ones :

1. The motion of simple pendulum is a transitional motion. ( )
2. Lead sulphate salt dissolves in water. ( )

C Calculate the masses of reactants and products in the following reaction :

Knowing that the mass of (H = 1, O = 16, Na = 23)

$2Na + 2H_2O \longrightarrow 2NaOH + H_2$

Question 2

A Choose the correct answer :

1. Which of the following is considered as a circular motion ....
   a. fan motion. b. pendulum motion. c. train motion. d. sunflower motion.
2. The valency of argon is ....
   a. zero. b. monovalent. c. divalent. d. trivalent.
3. Planets revolve around the Sun in .... paths.
   a. circular b. elliptical c. spiral d. irregular
4. The speed of light waves in space is .... speed of radio waves.
   a. less than b. higher than c. equal to d. doubled
5. .... layer is rich in iron and nickel.
   a. Inner core b. Crust c. Outer core d. Mantle

PART 3

6. * The superficial layer of the Earth's crust is .... layer.

a. thick b. rocky c. loosened d. unfragmented

B Write the chemical formula of the following :

1. Aluminium carbonate.
2. Sulphuric acid.
3. Ferrous oxide.
4. Calcium nitrate.

Question 3

A Write the scientific term :

1. Solidified masses of ice, gases and rock pieces revolving around the Sun.
2. The number of electrons gained, lost or even shared during a chemical reaction.
3. The region which separates the group of the inner planets from the outer planets.
4. Breaking bonds between molecules of reactants and formation of new bonds between molecules of products.
5. It is an effect that attempts to change state of object from static to motion or vice versa.
6. The motion which is regularly repeated in equal periods of time.

B Mention one use of :

1. Ultraviolet rays.
2. Infrared rays.
3. Electromagnet.
4. Weak nuclear force.

C An object of weight 98 N. Calculate its mass knowing that the Earth's gravitational acceleration is 9.8 m/sec^2.

Question 4

A Give reasons for :

1. The sunlight reaches to us but we can't hear the sound of solar explosions.
2. The chemical equation should be balanced.
3. Lubricating and oiling mechanical machines.

B Write one harm for the following :

1. Nitrogen oxides.
2. Carbon monoxide.
3. Burning of coal and cellulose fibers.

C Compare between :

1. Acids and bases.
2. Electric generator and electric motor (concerning the changes of energy).

D **Write the balanced chemical equation of the following reactions :**

1. Reaction between ammonia and concentrated hydrochloric acid.
2. Reaction between hydrogen and chlorine.
3. Reaction between nitrogen monoxide with oxygen.

6 Cairo Governorate

El-Maadi Educational Administration
Orman Smart School

Answer the following questions :

Question 1

A **Complete the following statements :**

1. .... and .... are examples of monovalent atomic groups.
2. The Earth's layers from the surface to the centre are Earth's crust, ... , ... and ....
3. Waves are divided into .... and ....
4. Dynamo changes .... energy into .... energy.
5. Oil and lubricants are used in machines to ....

B **Calculate the weight of 0.8 kg mass ball, knowing that Earth's gravitational acceleration is 9.8 m/sec^2.**

C **Write the function of :**

1. X-rays.
2. Strong nuclear force.
3. Ultraviolet rays.

Question 2

A **Give reasons for :**

1. Presence of life on the Earth's surface.
2. Safety belts are used in cars.
3. White clouds are formed when ammonia gas reacts with conc. hydrochloric acid.
4. Steadfastness of hydrosphere on Earth's surface.
5. Noble gases don't participate in any chemical reaction.

B **Calculate the mass of reactants and products in the following reaction :**

$C + O_2 \xrightarrow{\Delta} CO_2$ (mass of : O = 16 & C = 12).

C **Write the chemical formula of :**

1. Sodium oxide.
2. Calcium carbonate.

PART 3

Question 3

A Write the scientific term :

1. Compounds dissolve in water producing positive hydrogen ions.
2. The layer of atmosphere which protects us from ultraviolet rays.
3. Type of chemical bonds arises due to electric attraction between positive ion and negative ion.
4. The name of the galaxy that our solar system belongs to it.
5. The number of gained or lost or shared electrons.

B Compare between each of the following :

1. Meteors and meteorites.
2. Inner and outer planets.

Question 4

A Put (✓) or (✗) :

1. Green plants use carbon dioxide gas in photosynthesis process. ( )
2. Sodium hydroxide changes the colour of litmus paper into red. ( )
3. All nonmetals conduct electricity. ( )
4. Dynamo changes heat energy into electric energy. ( )
5. An element, its atomic number is 20, so its valency is monovalent. ( )
6. * Quartz mineral is the main component in granite rock. ( )

B What happens when ... ?

1. Burning of coal and cellulose fibres.
2. The car stops suddenly.

C * What is meant by ... ?

1. Sedimentary rocks.
2. Soil.

7 Giza Governorate — El-Dokki Educational Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. Fundamental forces in nature are divided into three divisions which are .... forces, ... forces and .... forces.
2. The motion of simple pendulum is considered .... motion, while that is produced from throwing a stone in water is considered .... motion and both are considered as forms of .... motion.
3. * Marble is resulted from transformation of ....

B **Compare between :** Electric generator and electric motor.

C **Define :** 1. Force. 2. The ion

Question 2

A **Choose the correct answer :**

1. The telescope is used to study the ....
   a. minerals. b. earthquakes. c. celestial bodies. d. volcanoes.
2. From the examples of forces inside living systems is/are ....
   a. pulse inside blood vessels. b. inertia.
   c. brakes. d. all the previous answers.
3. Regarding the volume, the Earth occupies the .... order (ascendingly) in the solar system.
   a. third b. fourth c. fifth d. eighth
4. The substances resulted from burning of coal and cellulose fibers cause ....
   a. headache. b. fainting. c. lung cancer. d. (a), (b) and (c).
5. There is a triple covalent bond in .... molecule.
   a. hydrogen b. chlorine c. oxygen d. nitrogen

B **Write the electronic configuration of the atoms of the following elements ($_{18}Ar$ – $_{12}Mg$ – $_{16}S$), then indicate :**

1. The type of each atom (metal – nonmetal – noble).
2. The type of each ion (positive – negative – has no ions).

C **Give reasons for :**

1. The density of the outer planets is low.
2. Potassium ($_{19}K$) is monovalent, while oxygen ($_{8}O$) is divalent.
3. Astronauts can't hear each other voices directly in space.

Question 3

A **Correct the underlined words :**

1. Water molecule consists of <u>four</u> atoms for two elements.
2. Strong nuclear forces are used in generating <u>solar</u> energy.
3. The Milky Way galaxy takes an oval shape with <u>straight</u> arms.
4. Safety belts in cars work on <u>increasing</u> the forces of inertia.
5. The water of <u>oceans</u> is fresh water.
6. Nitrogen oxides are formed during occurrence of <u>earthquake</u>.

B Calculate the mass of an object, if its weight is 460 newton, knowing that the Earth's gravitational acceleration is 10 m/sec^2.

C Write the chemical formula of the following compounds :

1. Aluminium carbonate.
2. Sodium sulphate.
3. Magnesium hydroxide.
4. Ammonium carbonate.
5. Calcium phosphate.
6. Sulphur trioxide.

Question 4

A Knowing that the mass of carbon (C = 12) and oxygen (O = 16) find the total masses of reactants and products through the following reaction : $C + O_2 \xrightarrow{\Delta} CO_2$

B What happens when ... ?

1. A wet glass rod with ammonia solution is exposed to a test tube containing concentrated hydrochloric acid.
2. * Decreasing the temperature of lava on the Earth's surface rapidly.

C Write the scientific term in front of each of the following :

1. The number of electrons gained, lost or even shared by an atom during a chemical reaction.
2. Breaking the reactants bonds and forming new ones among the products.
3. The largest planet in the solar system.
4. Compounds that dissolve in water producing positive hydrogen ions H^+.
5. A system that consists of thousands of millions of stars.
6. An atom of an element does not give or gain any electrons.

8 Giza Governorate

Omrania Educational Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. Water covers .... from Earth's surface.
2. .... produced from lightning that affect the nervous system and eye.
3. .... is the measuring unit between celestial bodies.
4. .... is from the importance of chemical reactions in daily life.
5. $2Mg + ... \xrightarrow{\Delta} 2MgO$
6. .... layer protects living organisms from harmful rays.
7. Comets are consist of .... and ....

B Correct the underlined words :

1. On burning magnesium strip in air, **a black** powder is formed.
2. The passengers are rushed backward when the car moves suddenly due to **friction** force.
3. **Weak nuclear forces** are used in producing electric energy.
4. The waves that are used in examining and curing sets of human body are **infrared rays**.

C Calculate the weight of an object, if the Earth's gravitational acceleration is 9.8 m/s^2 and its mass is 5 kg.

Question 2

A Write the scientific term :

1. An effect attempts to change the object's phase from being static to motion or change the motion direction.
2. The number of electrons gained, lost or even shared by an atom during chemical reaction.
3. Luminous lines which are formed in the sky due to completely burning of small rocky masses in the Earth's atmosphere.
4. Breaking the reactants bonds and forming new ones among the products.
5. Region that separates between Mars and Jupiter.

B Give reasons for :

1. Lubricating and oiling machines parts.
2. A chemical equation should be balanced.
3. We see lightning before hearing thunder.
4. There is life on Earth planet.

C Mention the importance of :

1. Gamma rays. 2. Infrared rays. 3. Chemical reaction.

Question 3

A Choose the correct answer :

1. The car brakes performance is an application of ....
   a. attraction force. b. friction force. c. force of inertia.
2. Earth's inner core is rich in ....
   a. copper and iron. b. iron and silver. c. iron and nickel.
3. Electromagnet is used in making ....
   a. electric winch. b. calculator. c. microscope.
4. Planets revolve around the Sun in .... paths.
   a. circular b. spiral c. elliptical

5. .... is/are from forces inside living organisms.
   a. Contraction and relaxation of muscles
   b. Electromagnetic force
   c. Attraction force
6. All of the following are periodic motions except ....
   a. movement of the Moon around the Earth.
   b. train motion.
   c. pendulum motion.
7. * Limestone has a ....
   a. white colour with coarse texture.
   b. yellow colour with coarse texture.
   c. yellow colour with smooth texture.
   d. white colour with smooth texture.

B Mention the difference between :

1. Acids and bases.
2. Electric generator and electric motor.
3. Outer planets and inner planets in solar system.

C Write the chemical formula of :

1. Sulphuric acid.
2. Aluminium oxide.

Question 4

A What will happen when ... ?

1. Approaching a wet rod with hydrochloric acid to ammonia gas.
2. The increase of the percentage of carbon dioxide in the atmospheric air.
3. An electric current passes through an insulated copper wire coiling around a bar of iron.

B Give an example of :

1. Noble gas.
2. Monovalent atomic group.
3. Circular motion.

C Find the masses of reactants and products in the reaction :

$C + O_2 \xrightarrow{\Delta} CO_2$ [Knowing that (C = 12 and O = 16)]

9 Giza Governorate

El-Haram Directorate
Hafr Elbaten School

Answer the following questions :

Question 1

A Write the scientific term :

1. Small rocky masses that burn up completely due to friction with Earth's atmosphere.
2. The effect that attempts to change the object's phase from being static to motion.
3. The device that changes electric energy into mechanical energy.

4. A movement which is regularly repeated in equal intervals of time.
5. A bond resulting from the participation of each of the two atoms with three electrons.
6. Changing an object's position as time passes from its initial position to final one.
7. Elements that don't participate in chemical reaction under the ordinary conditions due to the completeness of their outermost energy levels.

B Calculate the total mass of reactants and products in the following reaction :

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$ (Knowing that the mass of Mg = 24 & O = 16).

C Choose the odd word out, then mention what the rest has in common :

1. Light waves – Sound waves – Water waves.
2. Oxygen – Nitrogen – Chlorine – Sodium.
3. Earth'crust – Atmosphere – Mantle – Core.

Question 2

A Choose the correct answer :

1. The solid layer in the Earth that is rich in iron and nickel is ....
   a. crust. b. mantle. c. outer core. d. inner core.
2. Electromagnet is used in making ....
   a. calculator. b. electric bell.
   c. microscope. d. night vision apparatus.
3. The chemical formula of hydrochloric acid is ....
   a. H_2O b. HCl c. H_2SO_4 d. HNO_3
4. The object's weight on Earth's surface is related to ....
   a. electromagnetic force. b. gravitational force.
   c. nuclear force. d. friction force.
5. From circular motion is ....
   a. pendulum motion. b. movement of Moon around Earth.
   c. water wave motion. d. bicycle motion.
6. All of the following forces and operations are applications on friction except ....
   a. walking on ground. b. moving cars.
   c. the work of dynamo. d. stopping cars.
7. .... oxides are resulted during lightning.
   a. Carbon b. Sulphur c. Nitrogen d. Hydrogen

B An object whose mass is 10 kg, calculate its weight knowing that the Earth's gravitational acceleration is 9.8 m/s².

PART 3

C Write the chemical formula of the following compounds :

1. Silver chloride.
2. Sulphur trioxide.
3. Sodium sulphate.
4. Aluminium oxide.
5. Nitric acid.

Question 3

A Complete the following statements :

1. .... and .... are accompanied forces to motion.
2. The bond in sodium chloride is .... bond, whereas the bond in water molecule is .... bond.
3. The valency of phosphate group is ....
4. The motion of simple pendulum is .... motion, while the motion of train is .... motion.
5. * The plant roots extend easily through the upper part of the .... layer.

B Mention the importance of the following :

1. Ozone layer.
2. Ultraviolet rays.
3. Strong nuclear force.

C What happens in the following cases ... ?

1. A moving car stops suddenly.
2. There is no atmosphere around the Earth.
3. Adding ammonia to concentrated hydrochloric acid.
4. Burning of coal and cellulose fibres (concerning its effect on air).

Question 4

A Show by a chemical equation the following reactions :

1. Reaction between ammonia gas and hydrochloric acid.
2. Reaction of carbon monoxide with oxygen.
3. Burning a piece of carbon in the presence of oxygen.

B Mention one harm for the following :

1. Carbon dioxide.
2. Nitrogen oxides.
3. Friction force.

C Put (✓) or (✗) :

1. Earth's radius between the two poles is larger than that at the equator. (   )
2. A chemical equation should be balanced to achieve the law of conservation of matter. (   )
3. Weak nuclear forces are used in producing electric energy. (   )
4. Crust is the outer layer of Earth. (   )

D Give reasons for :

1. An object's weight is changed from a planet to another.
2. The density of inner planets is high, while that of outer planets is low.
3. We see lightning before hearing thunder.
4. The planet Earth is suitable for life.
5. * The cohesion of layers of sedimentary rocks increases by passing time.

10 Giza Governorate

Sheikh Zayed Educational Directorate
Modern Infinity Language School

Answer the following questions :

Question 1

A Write down the scientific term for each of the following :

1. Luminous lines which are formed in the sky due to completely burning of small rocky masses in the Earth's atmosphere.
2. Resistant forces originated between the object in motion and the medium touching it.
3. Rays used in detecting the bone fractures.
4. A system that consists of thousands of millions of stars.

B complete the following :

1. Electric motor changes .... energy into .... energy.
2. NH_3 + ... $\xrightarrow{\text{Conc.}}$ NH_4Cl, the type of this reaction is ....
3. The bond in oxygen molecule is .... bond, while that in calcium oxide is .... bond.
4. Asteroid belt lies between the oribts of .... and ....
5. .... is an example for acids, while .... is an example for bases.
6. * Plutonic rocks have crystals with .... size, while volcanic rocks have crystals with .... size.

Question 2

A Choose the correct answer :

1. The magnesium ribbon changes into white powder of .... when it burns in air.
   a. magnesium nitrite b. magnesium oxide
   c. magnesium hydroxide d. magnesium dioxide
2. All of the following are periodic motions except the .... motion.
   a. fan b. pendulum c. train d. sunflower

PART 3

3. Ammonia combines with HCl producing .... of ammonium chloride.

a. white powder | b. white ppt. | c. white fumes | d. white solution

4. The isolated coil in electromagnet made up of ....

a. iron. | b. magnet. | c. copper. | d. mercury.

5. .... rays are used in remote sensing instruments.

a. Ultraviolet | b. Infrared | c. Gamma | d. Visible light

6. The distance covered by light in one year = ... km.

a. 150 million | b. 6368 | c. 5.9×10^{24} | d. 9.467×10^{12}

7. .... is a liquid metal.

a. Mercury | b. Nitrogen | c. Magnesium | d. Chlorine

8. The chemical formula of carbonate group is ....

a. $(CO_3)^{-2}$ | b. CO | c. $(HCO_3)^-$ | d. CO_2

9. .... salt dissolves in water.

a. K_2SO_4 | b. $CuCO_3$ | c. $PbSO_4$ | d. $CaCO_3$

10. Earth is the .... planet regarding to the volume (ascendingly).

a. 1st | b. 2nd | c. 3rd | d. 4th

B Give reasons for the following :

1. We must use safety belts during driving.
2. We see lightning before hearing thunder.
3. The bond in sodium chloride is ionic bond.
4. When an atom gains an electron or more, it becomes a negative ion.

Question 3

A Match :

(A)	(B)
1. The chemical formula of sodium sulphate	a. electromagnetic wave.
2. Sound	b. NaCl
3. Light	c. Na_2SO_4
4. $_{12}Mg$	d. metal.
5. $_{17}Cl$	e. nonmetal.
6. The chemical formula of sodium chloride.	f. mechanical wave.

B Write the electronic configuration for the following elements and determine the type of the ion formed [negative – positive – no ion] : $_{18}Ar$ – $_{8}O$ – $_{20}Ca$ – $_{2}He$

C Compare between :

1. The inner and outer planets.
2. Acids and bases.

Question 4

A put (✓) or (✗) and correct the wrong ones :

1. Bromine is a liquid nonmetal. ( )
2. Base is a substance dissolves in water giving $(OH)^-$ ( )
3. The motion of simple pendulum is a transitional motion. ( )
4. The sound and water waves are examples of electromagnetic waves. ( )
5. The number of known elements is 118 ( )
6. In the positive ions, the number of electrons is more than the number of protons. ( )
7. Argon is considered as a noble gas. ( )
8. The percentage of salty water in the Earth is 3% ( )
9. The planets revolve around the Sun in a circular way. ( )
10. The biggest acceleration is on Jupiter planet. ( )

B Write one use or benefit :

1. Infrared rays.
2. Gamma rays.
3. Electromagnet.
4. Friction force.

C * What are the results based on ... ?

You add hydrochloric acid to limestone.

11 Alexandria Governorate

El-Montazah Directorate
Brilliance Language School

Answer the following questions :

Question 1

A Choose the correct answer :

1. The measuring unit of the speed is ....
 a. m/sec. b. joule. c. kg. d. newton.
2. The Earth is located in the solar system regarding its distance from the Sun in the .... order.
 a. fifth b. fourth c. third d. seventh
3. If ($_{13}Al$) combines with ($_{8}O$), the chemical formula of the formed compound is ....
 a. Al_3O_2 b. AlO c. AlO_2 d. Al_2O_3

4. If the weight of a body is 400 N, knowing that the Earth's gravitational acceleration is 10 m/sec.^{2}, its mass equals ....

a. 40 kg. b. 4 kg. c. 4000 kg. d. 80 kg.

5. The type of bond in nitrogen molecule is .... bond.

a. double covalent b. single covalent c. triple covalent d. ionic

6. All of nonmetals don't conduct electricity except ....

a. bromine. b. aluminium. c. graphite. d. mercury.

B Write the electronic configuration of each of the following atoms :

$_{8}O$ – $_{11}Na$ – $_{17}Cl$ – $_{18}Ar$

Then indicate :

(1) The type of each element (metal – nonmetal – inert gas).

(2) The type of bond formed between:

a. Two oxygen atoms. b. Sodium and chlorine atoms.

C What happens when ... ?

1. Meteors enter the atmosphere.

2. A wet glass rod with ammonia solution is exposed to a test tube containing concentrated hydrochloric acid. (mention the chemical equation).

Question 2

A Mention one importance of :

1. Gamma rays. 2. Safety belts. 3. Electromagnet.

B Write the scientific term :

1. The motion of an object in which its position is changed relative to a fixed point from initial position to final position.

2. The most famous comet.

3. The gas that causes a greenhouse effect.

4. Forces produced inside the nucleus.

5. * A molten material, that exists at depths beneath the crust.

C What are the results of ... ?

1. Burning of coal and cellulose fibres.

2. Putting a red litmus paper in a test tube contains sodium hydroxide and another one in hydrochloric acid.

Question 3

A Give reasons for :

1. The valency of noble gases is zero.
2. Lubricating and oiling mechanical machines.
3. Earth planet is suitable for life. (mention at least 3 reasons).
4. Object's weight changes from one place to another on the Earth's surface.
5. * The components of basalt rock cannot be seen by the naked eye.

B Give one example for each of the following :

1. Metal has more than one valency.
2. Salt dissolves in water.
3. Benefits of friction.
4. Positive monovalent atomic group.

C Write the chemical formula for each one :

1. Ammonium sulphate.
2. Calcium chloride.
3. Ferric oxide.
4. Silver nitrate.

D If you have an element : ($^{40}_{20}X$)

1. Mention its kind.
2. Its valency.

Question 4

A Knowing that the mass of carbon = 12 and oxygen = 16, find the total mass of reactants and products of the following reaction : $C + O_2 \xrightarrow{\Delta} CO_2$

B Compare between :

1. Metal oxides and nonmetal oxides (according to: definition – example).
2. Electromagnetic and mechanical waves (according to: definition – example).

C Complete the following statements :

1. The motion of the simple pendulum is .... motion, while the motion of the train is .... motion.
2. Nitrogen oxide affects .... system and the ....
3. The Earth's inner core is rich in .... and ....
4. The electric motor changes .... energy into .... energy.
5. Green plants use .... gas in photosynthesis process and use .... gas to form proteins.
6. $2CO + O_2 \xrightarrow{\Delta}$ ....

D Mention the type of the following compounds : (Acid – Oxide – Base – Salt).

1. CaO
2. Na_2SO_4
3. KOH
4. HNO_3

PART 3

12 Alexandria Governorate

El-Gomrok Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. .... gas enters in formation of proteins and it represent .... of the air volume.
2. .... layer protects living organisms from harmful .... rays.
3. $H_2 + Cl_2 \longrightarrow$ ....
4. Electromagnet is used to make .... and ....
5. The chemical equation should be .... to achieve the law of conservation of mass.
6. * .... is a thin .... layer, which covers the Earth's crust.
7. * Rocks are classified according to the way of formation into .... , ... and .... rocks.

B Mention :

1. Two benefits of friction.
2. One use of gamma rays.
3. The bad effect of carbon dioxide.
4. An example of a circular motion.

C Knowing that the mass of carbon C is 12 and oxygen O is 16 : find the total mass of reactants and products through the following reaction. $C + O_2 \xrightarrow{\Delta} CO_2$

Question 2

A Write the scientific term :

1. Used to change the mechanical energy into electric energy.
2. Breaking the reactants bonds and forming new ones among the products.
3. Oxides that cause building corrosion.
4. Waves that don't need a medium to propagate.
5. Any body swims in the space such as stars and planets.
6. A set of atoms behaving like one atom during the reaction.

B Compare between : (one point only)

1. Mechanical and electromagnetic waves.
2. Sodium chloride (NaCl) and sliver chloride (AgCl).

C Identify the type of the following compounds :

1. KOH 2. MgO 3. HNO_3 4. Na_2SO_4

Question 3

A Correct the underlined words :

1. Friction causes a great loss of **chemical** energy.
2. The chemical formula of copper carbonate is **CuCO**
3. The Earth occupies the **fifth** position according to its distance from the Sun.
4. The bond in oxygen molecule is a **triple** covalent bond.
5. The motion of simple pendulum is an example of **wave** motion.
6. **Nitrogen oxides** cause headache and stomach-aches.

B Give reasons for :

1. Infrared rays are used in cooking.
2. Acids turn the colour of litmus paper to red.

C Write the chemical formula of each of the following :

Zinc oxide – Ammonium carbonate – Aluminium carbonate – Silver nitrate.

Question 4

A What is meant by ... ?

1. Inertia.
2. Valency.

B Choose the odd word out :

1. Sodium – Oxygen – Chlorine – Nitrogen.
2. NaCl – $MgCl_2$ – HCl – Na_2SO_4
3. Gravitational force – Friction force – Nuclear force.
4. Mercury – Venus – Jupiter – Mars.

C Show by drawing the combination between :

1. ($_1$H) and ($_1$H) to form hydrogen molecule.
2. ($_1$H) and ($_8$O) to form water molecule.

13 Alexandria Governorate

El-Agamy Educational Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. The type of chemical bond in magnesium oxide is ...., while in water molecule is ....
2. The chemical equation should be .... to achieve law of conservation of ....
3. The nearest planet to the Sun is .... and the farthest planet from the Sun is ....
4. White .... are formed on adding ammonia to concentrated ....

B Mention one function for each of the following :

1. X-rays.
2. Weak nuclear force.
3. Electromagnet.
4. Ozone layer.

C Correct the underlined words :

1. The atmospheric pressure is about **90 cm.Hg**.
2. Nitrogen oxides are formed during occurrence of **earthquakes**.

Question 2

A Write the scientific term :

1. A force by which objects are attracted to the Earth.
2. The distance covered by light in one year.
3. They are compounds resulted from the combination between oxygen and an element.
4. Substances dissociate in water and give negative hydroxide ions.

B Show by chemical equation :

1. Burning of coal in air.
2. Reaction between carbon monoxide and oxygen.

C Compare between : Inner and outer planets (2 points).

D Write the chemical formula of each of the following :

1. Calcium carbonate.
2. Aluminium oxide.

Question 3

A Give reasons for :

1. Earth is suitable planet for life.
2. We see lightning before hearing the thunder.
3. Sodium is monovalent element.
4. Planets revolve around the Sun in fixed orbits.

B Give one example :

1. Insoluble salt in water.
2. Transitional motion.
3. Rays have heat effect.

C Define :

1. Chemical formula.
2. Inertia.

Question 4

A Choose the correct answer :

1. Sodium chloride molecule is considered ....
   a. an acid. b. an alkali. c. an oxide. d. a salt.
2. The symbol of phosphate group is ....
   a. $(CO_3)^{-2}$ b. $(PO_4)^{-3}$ c. $(SO_4)^{-2}$ d. $(NH_4)^{+}$
3. Lubricating and oiling mechanical machines depend on decreasing the effect of .... force.
   a. inertia b. friction c. attraction d. electromagnetic
4. .... changes the mechanical energy into electric energy.
   a. Dynamo b. Electromagnet c. Motor d. Electric fan
5. The greatest Earth's layer in thickness is the ....
   a. Earth's crust. b. inner core. c. outer core. d. mantle.
6. The biggest units of universe are ....
   a. galaxies. b. planets. c. stars. d. moons.
7. * All of the following are minerals, that form granite rock except ....
   a. quartz. b. olivine. c. mica. d. feldspar.

B What happens when ... ?

1. Putting litmus paper in a beaker contains HCl.
2. There is no friction force (2 points).
3. An atom loses one electron or more.

Ⓒ An object of mass 100 kg on Earth, calculate its weight knowing that the Earth's gravitational acceleration is 9.8 m/sec^2.

14 Al-Qaliubya Governorate

Al Resala Language School
Al Obour Educational Directorate

Answer the following questions :

Question 1

Ⓐ **Complete the following statements :**

1. The valency of $_{18}Ar$ is ...., while that of $(CO_3)^{-2}$ is ....
2. $C + O_2 \xrightarrow{\Delta}$ ....
3. According to the law of conservation of mass, the sum of .... masses equals the sum of .... masses.
4. The bond in sodium chloride is ...., whereas the bond in oxygen molecule is ....
5. ....and .... are from the examples of transitional motion.
6. The electromagnet changes .... energy into .... energy.
7. Earth consists of a number of arranged layers from the surface to the centre, as follows the crust, ... and ....
8. On dissolving acids in water, they give .... ions, while on dissolving .... in water, they give negative hydroxide ions $(OH)^-$.

Ⓑ **Write the chemical formula for the following :**

1. Sulphuric acid.
2. Calcium hydroxide.
3. Sodium bicarbonate.
4. Aluminium hydroxide.

Ⓒ **Compare between :**

1. Acids and bases (One point only for each).
2. Electromagnetic waves and mechanical waves (Concerning: speed).
3. Hg and Br (According to: the type of element and its physical state).
4. Light and sound waves (One point only for each).

Question 2

Ⓐ **Write the scientific term :**

1. A bond resulting from the participation of each of the two atoms with two electrons.
2. They are waves that produced due to the vibration of the medium particles and they need a medium to transfer through.

3. The layer that protects living organisms from harmful UV.
4. A type of nuclear forces that are used in medicine and scientific researches.
5. The first outer light layer that its thickness is ranging between 8-60 km.
6. The number of electrons that an atom gains, loses or even shares during the chemical reaction.

B **Mention an example for :**

1. A nonmetal liquid element.
2. A salt dissolves in water.
3. An electromagnetic wave.
4. A monovalent atomic group.

C **Put (✓) or (✗), then correct the wrong ones :**

1. Green plants use O_2 gas in photosynthesis process. ( )
2. Silver chloride changes the colour of litmus paper into red. ( )
3. The idea of machine oiling and lubrication depends on the increasing of friction force. ( )
4. Our solar system belongs to the milky way galaxy. ( )

D **Write the name of the following compounds :**

1. KOH 2. CO_2 3. Na_2O 4. HCl

Question 3

A **Choose the correct answer :**

1. All nonmetals don't conduct electricity except ....
   a. bromine. b. graphite. c. sulphur. d. phosphorus.
2. The layer which consists of molten metals is the ....
   a. crust. b. mantle. c. outer core. d. inner core.
3. During chemical reactions, ($_{19}K$) atom loses electron(s) and changes into ....
   a. K^+ b. K^- c. K^{+2} d. K^{-2}
4. .... is a mechanical wave.
   a. X-ray b. Light c. Sound d. Gamma ray
5. The valency of helium ($_2He$) is ....
   a. zero. b. one. c. two. d. four.
6. All of the following substances turn the litmus paper into blue except ....
   a. H_2SO_4 b. $Ca(OH)_2$
   c. KOH d. no correct answer.

B **Give reasons for :**

1. Jupiter, Saturn, Uranus and Neptune are called the outer giant planets.
2. We receive the sunlight but we don't hear the sound of the solar explosions.

3. All acids turn the litmus paper into red.

4. $_{13}Al$ tends to form a positive ion, while $_{17}Cl$ tends to form a negative ion.

C Problems :

(Knowing that the mass of : H= 1, Cl= 35.5, S= 32, O= 16).

1. Calculate the masses of reactants and products in the following equations :

a. $H_2 + Cl_2 \longrightarrow 2HCl$

b. $S + O_2 \xrightarrow{\Delta} SO_2$

2. Calculate the weight of an object, its mass is 700 kg. (Knowing that the Earth's gravitational acceleration is 9.8 m/sec^2).

Question 4

A Correct the following statements :

1. The mass of an object is changed from one place to another.
2. Sodium chloride is considered an oxide.
3. Elements having 1,2 or 3 electrons in their outermost energy levels are nonmetals that don't share in the chemical reaction.
4. Meteoroids are celestial bodies that burn up completely when penetrate the atmosphere and they are big rocky masses.
5. Land percentage on the Earth's surface forms about 50%
6. Safty belt is an application on friction force.
7. * When hydrochloric acid is added to limestone, oxygen gas is evolved.

B Mention an application / importance for each of the following :

1. X-rays. 2. Friction force. 3. IR rays. 4. Sound waves.

C Write the chemical equation for the following reactions :

1. The burning of magnesium ribbon in the air.
2. The combination of ammonia gas with conc. hydrochloric acid.

D What happens in the following cases ... ?

1. An atom loses one electron or more.
2. A moving car stops suddenly. (Mention the reason).
3. Migration of a bird from the south pole to the equator. (Related to: the mass and the weight of the bird).
4. * Increasing the pressure on the grains of rocks forming the layers of sedimentary rocks.

15 El-Sharkia Governorate

Abo-Salem Official Language School

Answer the following questions :

Question 1

A Complete the following statements :

1. On dissolving acids in water give .... ions, while alkalis give .... ions.
2. .... oxides affect the nervous system, while .... oxides cause respiratory system malfunction.
3. Heart muscle .... and .... helps the heart to pump blood to all over the body.
4. .... rays are used in night vision apparatus.
5. The density of the outer planets is .... than the density of inner planets.
6. * .... is a sedimentary rock.

B What is meant by ... ?

1. Chemical equation.
2. Friction forces.

C Mention one function (use) of each of the following :

1. Ultraviolet rays.
2. Strong nuclear force.
3. Telescopes.

Question 2

A Write the scientific term of each of the following :

1. An object's position changes as time passes from its initial position to a different final one.
2. Small space bodies that are affected by the planets' gravity.
3. White clouds are formed on placing a wet rod with conc. hydrochloric acid close to a test tube containing ammonia solution.
4. A bond resulting from the participation of each of the two atoms with three electrons.

B Write the chemical formula of the following and determine the number of atoms and the number of elements.

1. Sodium sulphate.
2. Aluminium carbonate.
3. Ammonium nitrate.

C What happens when ... ?

1. Two objects move at the same speed and in the same direction.
2. Absence of ozone layer in the atmosphere.

PART 3

Question 3

A Choose the correct answer :

1. Element (M) form a compound $M(OH)_3$ so, its valency is ....
   a. monovalent. b. divalent. c. trivalent. d. tetravalent.
2. .... are used in examining bones.
   a. Ultrasonic waves b. Gamma rays c. Infrared rays d. X-rays
3. The layer which consists of molten metals is the ....
   a. crust. b. mantle. c. outer core. d. inner core.
4. All of the following are covalent molecules except ....
   a. H_2O b. MgO c. N_2 d. O_2

B From the opposite reaction : $2CO + O_2 \xrightarrow{\Delta} 2CO_2$

Show how the conservation law of matter is achieved, then define it.

(knowing the atomic masses of : C = 12 & O = 16)

C Write the characteristics of the Earth that support the continuity of life.

Question 4

A Give reasons for the following :

1. Car tyres are covered with a very coarse substance.
2. Object's weight changes from one place to another on the Earth's surface.
3. Ionic bonds produce compounds only not elements.
4. * Some kinds of marble are coloured and others are white.

B Cross the odd word out :

1. H_2O – HBr – HCl – HNO_3
2. Radio waves – Microwaves – Sound waves – X-rays.
3. Earth – Venus – Neptune – Halley.

C Answer the following questions :

1. Calculate the distance in light year between two stars, if the distance between them equals 28.401×10^{12} km.
2. Element (X) combines with oxygen forming (X_2O) oxide :
   a. Mention the valency of element (X).
   b. What is the type of the produced oxide.

16 El-Menofia Governorate

Shebin El-Kom Directorate

Answer the following questions :

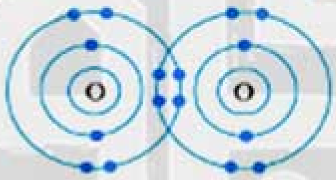
Question 1

A Complete the following statements :

1. The chemical formula of water is .... , while the chemical formula of table salt is ....
2. Sound waves are example of .... waves but radio waves are example of .... waves.
3. The distance covered by the light in one year is called ....which measure the distance between ....
4. An object's .... changes from a place to another on the Earth's surface, whereas its .... remains fixed.
5. $NH_3 + HCl \xrightarrow{conc.}$ .... 6. $2Mg + O_2 \xrightarrow{\Delta}$ ....

B Complete the following figure and write the kind of the bond : ($^{16}_{8}O$):

.... + ... ⟶



Oxygen molecule (O_2)

Question 2

A Write the scientific term for each of the following :

1. Substances dissociate in water producing positive hydrogen ions (H^+)
2. Motion which is regularly repeated in equal periods of time.
3. Small space bodies that are affected by the planets' gravity.
4. An atom of an element that doesn't lose or gain any electrons in ordinary conditions.
5. * Rocks that are formed when old rocks (igneous or sedimentary) are subjected to pressure and high temperature.

B Write the chemical formula for each of the following :

1. Calcium nitrate. 2. Copper sulphate.

C Mention one benefit for :

1. Friction. 2. Ozone layer.

PART 3

Question 3

A Choose the correct answer :

1. All of these salts dissolve in water except ....
   a. sodium chloride. b. potassium sulphate. c. silver chloride.
2. The mass of an object, its weight is 98 newton is ....
   (knowing that the Earth's gravitational acceleration = $9.8 \ m/s^2$)
   a. 10 kg. b. 980 kg. c. 0.98 kg.
3. Planets revolve around the Sun in .... paths.
   a. circular b. elliptical c. spiral

B Give reasons for :

1. A chemical equation should be balanced.
2. Earth's inner core is rich in iron and nickel.
3. Infrared rays are used in cooking food.
4. The presence of white colour surrounds the planet Earth.
5. * Effervescence takes place when hydrochloric acid is added to a sample of limestone.

Question 4

A Put (✓) or (✗) :

1. Some elements have more than one valency such as iron (Fe). ( )
2. Sodium hydroxide changes the colour of litmus paper into red. ( )
3. Liquids transport through pores and the walls of cells from the higher concentration to the lower one. ( )
4. Earth's radius between the two poles is larger than that at the equator. ( )
5. The football player is rushed forward and falls down if he is tripped during running. ( )
6. Asteroids' belt is located between the orbits of Earth and Mars. ( )
7. The exerted work to lift an object increases by increasing the object's mass. ( )
8. The density of outer planets is lower than the density of inner planets. ( )

B Give one example for :

1. An apparatus depends in its working on electromagnetic forces.
2. Acidic gases cause respiratory system malfunctions and building corrosion.
3. The comets.

17 El-Gharbia Governorate
Samanoud Educational Zone

Answer the following questions :

Question 1

A Complete the following statements :

1. Increasing the ratio of .... gas in air leads to increasing the air temperature.
2. The work done to lift an object increases by .... its mass.
3. .... is the smallest Earth's layer in thickness.
4. .... elements do not participate in chemical reactions in ordinary conditions and their valency is ....
5. The greatest units that form the universe are called ....

B Mention only one application for each of the following :

1. Gamma rays.
2. Ultraviolet rays.

C Write the chemical formula of the following compounds, then mention their types :

1. Magnesium phosphate.
2. Ferric hydroxide.
3. Hydrogen chloride.

Question 2

A Write the scientific term :

1. Solidified masses of gases, ice and rock pieces revolve around the Sun in elliptical orbits.
2. Breaking down the bonds between atoms of reactant molecules and formation of new bonds.
3. The motion which is repeated regularly in equal intervals of time.
4. The effective point of an object's weight.

B What would happen in each of the following cases ... ?

1. A bird migrates from the north pole to the equator (concerning its mass and weight).
2. Small rocks penetrate the Earth's atmosphere.
3. Approaching a wet rod with hydrochloric acid to a test tube containing ammonia solution.
4. * Decreasing the temperature of lava on the Earth's surface rapidly.

C Choose the odd word out, then mention the link between the rest :

1. Nitrogen molecule – Table salt molecule – Water molecule – Oxygen molecule.
2. Mars – Saturn – Venus – Mercury.

PART 3

Question 3

A Choose the correct answer :

1. Water transports from soil to leaves of plants by the effect of .... force.
   a. gravitational
   b. biological
   c. electromagnetic
   d. inertia
2. All the following characteristics support the continuity of life on the Earth except ....
   a. atmosphere.
   b. attraction force.
   c. electromagnetic force.
   d. temperature.
3. The electronic configuration of potassium ($_{19}K$) ion is similar to the electronic configuration of .... ion.
   a. $_{8}O$
   b. $_{11}Na$
   c. $_{18}Ar$
   d. $_{17}Cl$
4. When a car is at a rest starts moving suddenly, the passengers ....
   a. rush backward.
   b. turn upside down.
   c. rush forward.
   d. keep steady.
5. * Sedimentary rocks form a thin cover that wraps about .... of the surface of the Eath's solid mass.
   a. 5%
   b. 75%
   c. 71%
   d. 57%

B Give reasons for each of the following :

1. We see lightning before hearing thunder.
2. Nitrogen gas is an important component in Earth's atmosphere.
3. We can obtain sodium chloride solution and not silver chloride solution.

C Compare between :

1. Electric generator and electric motor.
2. Inner core and outer core of the Earth.

Question 4

A Correct the underlined words :

1. Negative ions have number of energy levels **less than** that in their atoms.
2. Completing the food digestion and absorption processes is one of the importance of the Earth's **atmospheric pressure**.
3. The change of an object's position as time passes according to a frame of reference is called **average motion**.

B What is meant by each of the following ... ?

1. The distance between two stars is 2 light years.
2. The weight of an object is 30 newton.

C **Study the following chemical reaction, then answer the questions :**

Sodium hydroxide + Nitric acid ⟶ Sodium nitrate + Water

1. Write the balanced symbolic equation that represents this chemical reaction.
2. Show how the conservation law of matter is achieved in this reaction.
(knowing that the masses of elements are : (H=1 , O=16 , Na=23 & N=14))

18 Dakahlia Governorate

Belkas Educational Zone

Answer the following questions :

Question 1

A **Write the scientific term :**

1. The ability of the Earth to attract an object to its centre.
2. Waves which need a medium to transfer through.
3. The greatest units which form the universe.
4. Small space bodies that are affected by the planets' gravity.
5. A bond resulting from the participation of each of the two atoms with three electrons.
6. Compounds are dissociated in water producing $(OH)^-$ ions.

B **Calculate the mass of an object, if its weight is 285 newton and the Earth's gravitational acceleration is 10 m/sec^2.**

C **Complete the following table :**

Name of the compound	Chemical formula	Number of atoms in the molecule	Number of elements in the molecule
Sulphuric acid	...... (1)	...... (2)	...... (3) ......
...... (4)	$CuCO_3$	...... (5)	...... (6) ......

Question 2

A **Correct the underlined words :**

1. On burning magnesium strip in the presence of oxygen gas, **blue** powder is formed.
2. The **middle layer** of the Earth is rich in nickel and iron.
3. The motion of simple pendulum is **circular** motion.
4. Egypt seeks to use nuclear energy in producing **medicine**.
5. **Ultraviolet rays** are used in photographing bones to detect the sites of bones fractures.
6. The bond in magnesium oxide is **single covalent** bond.

PART 3

B Give reasons for :

1. Sodium $_{11}Na$ is monovalent, while $_{8}O$ is divalent.
2. Car tyres are covered with a very coarse substance.
3. We receive the sunlight at the same time we don't hear the sound of solar explosions.
4. The gravity on the Earth's surface is larger than that on Mars surface.

C Calculate the total masses of reactants and products of the following reaction :

$2H_2 + O_2 \longrightarrow 2H_2O$

Knowing that the mass number of elements as (H = 1 & O = 16)

Question 3

A Choose the correct answer :

1. .... oxides are resulted during the time of lightning.
   a. Carbon b. Sulphur c. Nitrogen d. Basic
2. From the examples of forces inside living organisms is/are ....
   a. inertia. b. brakes. c. pulse inside blood vessels. d. friction.
3. All of the following are covalent molecules except ....
   a. H_2O b. N_2 c. NaCl d. O_2
4. .... are used in night vision apparatus.
   a. Infrared rays b. Ultraviolet rays c. X-rays d. Gamma rays
5. Electromagnet is used in making the ....
   a. cooking food. b. electric bell. c. microscope. d. data show.
6. All of the following are electromagnetic waves except the ....
   a. sound waves. b. ultraviolet waves. c. infrared rays. d. visible light.

B Write the symbolic balanced chemical equation :

1. Burning of carbon in the presence of oxygen.
2. Reaction of hydrochloric acid with ammonia gas.

C Complete the following table :

The chemical formula	KOH	...... (1)	HNO_3	SO_3
Its name	...... (2)	Sodium sulphate	...... (3)	...... (4) ......
Its type	...... (5)	...... (6)	...... (7)	...... (8) ......

Question 4

A Complete the following statements :

1. The bond in oxygen molecule is .... bond but in water molecule is .... bond.
2. The comet consists of two parts which are .... and ....
3. The force of gravity between two objects depends on ....and ....
4. Strong nuclear forces are used in producing ....
5. If a football player is tripped during running forward, he will be ....and .... on the ground.
6. .... motion is regularly repeated at equal periods of time.
7. * Sandstone and .... are examples of .... rocks.

B Compare between :

Inner planets and outer planets according to (size – structure – density).

C What is meant by ... ?

Negative ion.

19 Ismailia Governorate

El-Salam Evangelical Language School

Answer the following questions :

Question 1

A Complete the following statements :

1. The electric motor changes .... energy into .... energy.
2. .... are used in photographing bones fractures.
3. $2Mg + O_2 \xrightarrow{\Delta}$ ....
4. Burning of coal and cellulose fibres causes ....pollution.
5. .... is used in Egypt to generate electricity.
6. * Plutonic rocks have crystals with .... size, while volcanic rocks have crystals with .... size.

B If you know that the mass of carbon = 12 and oxygen = 16, find the total masses of reactants and products through the following reaction : $C + O_2 \xrightarrow{\Delta} CO_2$

C Write the electronic configuration and valency for the following elements :

1. $^{27}_{13}Al$ 2. $^{20}_{10}Ne$ 3. $^{24}_{12}Mg$

PART 3

Question 2

A Choose the correct answer :

1. All of the following are metals except ....
   a. copper. b. aluminium. c. sodium. d. oxygen.
2. The chemical formula of sodium hydroxide is ....
   a. HCl b. Na_2CO_3 c. NaOH d. NaCl
3. The car brakes are one of the applications on .... force.
   a. friction b. inertia c. nuclear d. gravitational
4. The measuring unit of force is ....
   a. kg. b. newton. c. m/s^2. d. m/s.

B Give reasons for the following statements :

1. Policemen advise drivers to use safety belts in cars.
2. The Earth is suitable for life.
3. We see lightning before hearing thunder.

C Compare between inner and outer planets according to :

1. Structure. 2. Size. 3. Density. 4. Definition.

Question 3

A Correct the underlined words :

1. **Hydrogen** gas is used by plants to form proteins.
2. Water molecule consists of three atoms for **four** elements.
3. **Volume** of an object is the Earth's ability to attract that object.
4. **Meteors** consist of masses of rocks, ice and solidified gases.
5. Nonmetals are bad conductors of electricity except **sulphur**.

B If the Earth's gravitational acceleration in a place is 10 m/s^2, find the weight of an object if its mass is 28 kg.

C Give one example for :

1. Mechanical waves.
2. Electromagnetic waves.
3. Transitional motion.
4. Negative ion.
5. Circular motion.

Question 4

A Write the scientific term for each of the following sentences :

1. Oxides that cause building corrosion.

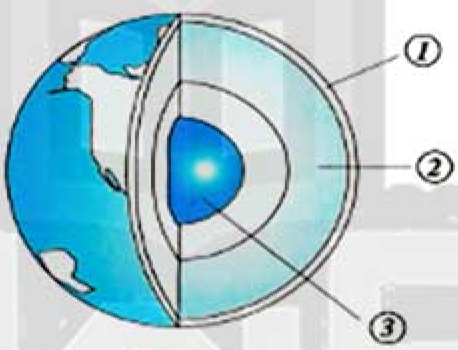
2. The followers of the planets.
3. Resistant forces originate between the object in motion and the medium touching it.
4. A set of joined atoms behaving like a single atom during chemical reaction.
5. * A rock that is produced from the conversion of limestone.

B Write the number indicating each of the following :

1. The distance between Earth planet and the Sun.
2. The normal atmospheric pressure.
3. Light year.
4. The atoms of ammonia molecule.

C The following figure represents the layers of Earth :

Mention the name of each layer and its thickness.



20 Damietta Governorate — Official Language Schools

Answer the following questions :

Question 1

A Complete the following statements :

1. The electric generator changes .... energy into .... energy.
2. On dissolving in water, acids give positive............... ions and alkalis give negative .... ions.
3. Waves are divided into ....waves and .... waves.
4. The force of gravity between two objects depends on .... and ....
5. Green plants use ....gas in photosynthes process and use .... gas to form proteins.
6. * Limestone consists of precipitation of .... in lime solutions.

B Write the name of each compound from the following and mention its type (acid or oxide or base or salt) :

1. CaO
2. KOH
3. Na_2SO_4
4. HNO_3

PART 3

C By drawing only, show :

1. The electronic configuration of oxygen atom ($^{16}_{8}O$).
2. How two oxygen atoms are bonded to form oxygen molecule (O_2).

D If the Earth's gravitational acceleration in a place is 9.8 m/sec^2, find the weight of a ball its mass is 0.3 kg.

Question 2

A Write the scientific term :

1. The layer of the Earth that lies beneath the Earth's crust.
2. It is a property of an object to resist the change of its state from rest to motion.
3. It is the breaking down of the bonds in reactants and forming new bonds in the products.
4. Solidified masses of gases, ice and rock pieces revolving around the Sun.
5. A bond that is produced due to electric attraction between a positive ion and a negative ion.
6. The number of electrons that an atom gains, loses or even shares during chemical reaction.

B Mention one application for :

1. Infrared rays. 2. Ultraviolet rays. 3. X-rays. 4. Gamma rays.

C Compare between (one point only for each) :

1. Meteors and meteorites. 2. Periodic motion and transitional motion.
3. The Earth's outer core and inner core.
4. Weak nuclear force and strong nuclear force.

Question 3

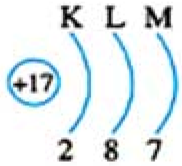
A Give reasons for each of the following :

1. Noble gases don't participate in chemical reactions under the ordinary conditions.
2. A chemical equation should be balanced.
3. The bond in a water (H_2O) molecule is a single covalent bond.
4. The density of outer planets is low.

B Mention one benefit for each of the following :

1. Friction. 2. Telescopes. 3. Electromagnet. 4. Visible light.

C From the electronic configuration for the following element, Complete :



1. The type of element : ....
2. The valency of element : ....
3. The ion of element : ....
4. The type of chemical bond when it combines with sodium ($_{11}Na$) : ....

D Knowing that the mass of carbon (C=12) and oxygen (O = 16).
Find the total masses of reactants and products through the following reaction.

$$C + O_2 \xrightarrow{\Delta} CO_2$$

Question 4

A Choose the correct answer :

1. When a nitrogen atom ($^{14}_{7}N$) gains electrons to complete its outermost shell, it becomes...............
   a. N^{-2} b. N^{-3} c. N^{+2} d. N^{+3}
2. The gas which reduces the effect of oxygen in burning process is ....
   a. CO_2 b. H_2O c. N_2 d. Cl_2
3. The normal atmospheric pressure equals .... cm. Hg.
   a. 76 b. 67 c. 70 d. 72
4. Car brakes are one of the applications of ....
   a. gravitational force. b. friction force. c. nuclear force. d. inertia force.
5. The biggest units of universe are ....
   a. planets. b. stars. c. galaxies. d. moons.
6. .... are poisonous and affect the nervous system and the eye.
   a. Cellulose fibres b. Sulphur oxides
   c. Carbon oxides d. Nitrogen oxides

B What happens when ... ?

1. Putting the red litmus paper in a tube containing (NaOH) solution.
2. Approaching a wet rod with hydrochloric acid to ammonia gas. (write the chemical equation for this reaction).
3. Absence of ozone layer in the atmosphere.
4. Burning a magnesium ribbon in air. (chemical equation).

PART 3

21 Port Said Governorate

Science Inspectorate for Language School

Answer the following questions :

Question 1

A Complete each of the following statements :

1. .... is the only liquid metal, while .... is the only liquid nonmetal.
2. The electromagnet is used in many devices such as .... and ....
3. .... and .... are two different types of telescopes that are used to identify celestial bodies.
4. The motion of the pendulum is a .... periodic motion, while the movement of the Moon around the Earth is a .... periodic motion.
5. * .... gas evolves when hydrochloric acid reacts with limestone.

B Give reasons for :

1. The atom changes into a positive ion when it loses one electron or more.
2. Without ozone layer, all living organisms on Earth will die.
3. * The plant roots extend easily through the upper part of the Earth's crust, but can't extend through its lower part.

C Write down the chemical formula of :

1. Calcium hydroxide.
2. Copper carbonate.

Question 2

A Write the scientific term :

1. Elements in which their outermost shells are completely filled with electrons.
2. Resistant force (against motion) is originated between the surface of the object in motion and the medium touching it.
3. Masses of rocks, ice and solidified gases rotate around the Sun in more elongated elliptical orbits.
4. Waves which are spread out in all media and space with extremely great speed.
5. Gas used by plants to form proteins.

B Compare between each two of the following :

1. Carbon oxides and sulphur oxides (examples only).
2. Electric generator and electric motor (in terms of energy conversions).
3. Meteors and meteorites (definition only).

C Calculate the total mass of the reactants and the products in the following reaction :

$$C + O_2 \xrightarrow{\Delta} CO_2$$

If you know that the mass of carbon is (C = 12) and the mass of oxygen is (O = 16).

Question 3

A Correct the underlined words :

1. Mercury is one of the <u>outer</u> planets.
2. The chemical formula of sodium chloride is <u>AgCl</u>
3. <u>Mass</u> is the amount of Earth's attraction to an object.
4. The distances between stars are measured by a unit called <u>kilometer</u>.
5. <u>Carbon oxides</u> are resulted at the time of lightning.
6. The Earth locates in the <u>fifth</u> position regarding the distance from the Sun.
7. The salty water represents <u>71%</u> of the water you see on the Earth's surface and it exists in oceans and seas.

B Write down the electronic configuration of each of the following atoms, and then mention the type of each atom (metal – nonmetal) : $_{12}Mg$ – $_{16}S$

C If the Earth's gravitational acceleration is 9.8 m/sec^2. Find the weight of a ball, its mass is 0.3 kg.

Question 4

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Vehicles passengers are rushed forward once the vehicles suddenly stop 2. Weak nuclear forces 3. Contraction and relaxation of the esophagus muscles	a. are used in treating headache and fainting. b. occurs by the effect of forces inside complex living systems. c. occurs by the effect of inertia. d. are used in medicine, scientific researches and industry.

B What is meant by ... ?

1. Ionic bond. 2. Valency. 3. Relative motion. 4. Asteroids.

C The opposite figure illustrates an Earth's sector :

1. Write the labels (1,2, 3 and 4).
2. What are the elements that form layer no. (4) ?



22 El-Behira Governorate

Ismail El-Habrouk Formal Language School

Answer the following questions :

Question 1

A Choose the correct answer :

1. The amount of Earth's gravitational pull on the object is ....
   a. object's mass.
   b. object's weight.
   c. gravitational acceleration.
   d. centrifugal force.
2. The number of electrons in the outermost energy level of (O^{-2}) equals to the number of electrons in the outermost energy level of ....
   a. $_{20}Ca$
   b. $_{18}Ar$
   c. $_{11}Na$
   d. $_{13}Al$
3. All of the following are metallic oxides except ....
   a. Na_2O
   b. MgO
   c. SO_3
   d. Al_2O_3
4. Increasing the ratio of .... gas in the atmosphere leads to increasing the air temperature.
   a. carbon monoxide
   b. carbon dioxide
   c. sulphur dioxide
   d. nitrogen monoxide
5. Water transports from soil to leaves of plant by the effect of ....
   a. gravitational forces.
   b. force of inertia.
   c. biological forces.
   d. friction forces.

B Give reasons for each of the following :

1. Astronauts can't hear each other voices directly in the space.
2. Chemical equation should be balanced.
3. Policemen advise drivers to use safety belts in cars.

C Knowing that the mass of carbon =12 and oxygen =16 Calculate :

The total mass of reactants and products through the following reaction

$$2CO + O_2 \xrightarrow{\Delta} 2CO_2$$

Question 2

A Choose the odd word out, then link between the rest words :

1. $_2He - _{18}Ar - _{10}Ne - _{16}S$

2. Light waves – Sound waves – Microwaves – Radio waves.
3. Headache – Fainting – Respiratory system malfunction – Severe stomach aches.

B Mention one application or importance for each of the following :

1. Ultraviolet rays.
2. Electromagnet.
3. Telescopes.

C Write an appropriate comment about reason of inertia below each figure :


Fig. (A)


Fig. (B)

Question 3

A Complete the following statements :

1. From salts which dissolve in water is .... but .... doesn't dissolve in water.
2. Factors affecting the gravity force between planets are .... and ....
3. Atmospheric pressure on the Earth's surface equals ....
4. Friction force is important for .... and ....
5. * Igneous rocks are divided according to the site of their formation in the Earth's surface into .... and ....

B What happens when ... ?

1. Approaching a wet rod with hydrochloric acid to ammonia gas. (Write the chemical equation).
2. Absence of ozone layer.
3. * Decreasing the temperature of lava on the Earth's surface rapidly.

C A spaceship its mass 500 kg, is launched from Earth towards Mars. Calculate each of the following :

1. Weight of this spaceship on Earth and on Mars.
2. Mass of this spaceship on Mars's surface.

(Knowing that : the gravity on the Earth's surface = 9.8 m/s^2 and the gravity on Mars's surface = 3.72 m/s^2).

PART 3

Question 4

A Write the scientific term for each of the following :

1. It is the breaking of the bonds existed between the atoms of reactants molecules, and forming new bonds between the atoms of the products molecules.
2. A set of different atoms joined together and behave like a single atom during a chemical reaction.
3. The distance covered by the light in a year and equals 9.467×10^{12} km.
4. Motion which is regularly repeated in equal periods of time.

B Answer the following :

1. $Al_2(SO_4)_3$
   a. Number of atoms equals .... b. Number of elements equals ....
2. Cl_2 (atomic number of Cl is 17)
   a. Type of element is .... b. Valency of element is ....
3. Fe_2O_3
   a. Name of compound is .... b. Type of compound is ....

C Compare between each of the following :

1. Meteors and meteorites. (In terms of: definition).
2. Ionic bond and covalent bond. (In terms of: examples).

23 Fayoum Governorate

Science Supervision For Governmental Language School

Answer the following questions :

Question 1

A Complete the following sentences :

1. The chemical formula of hydrochloric acid is .... but the chemical formula of sodium hydroxide is ....
2. From the sets which depend on electromagnetic forces to work are the .... and the ....
3. The nearest planet to the Sun is ...., but .... is the biggest one in the solar system.
4. The bond in sodium chloride compound is ...., but the bond in molecule of oxygen gas is ....

B Define :

1. Chemical reaction. 2. Asteroids. 3. Inertia.

C Mention one importance for each of the following :

1. Ultraviolet rays.
2. Sound waves.
3. Strong nuclear force.

Question 2

A Correct the underlined words in the following statements :

1. The idea of machines lubrication depends on the decreasing of <u>the gravity</u>.
2. <u>Salts</u> are substances that dissociate in water producing negative hydroxide ions $(OH)^-$.
3. The water bodies represent about <u>50%</u> of the Earth's surface.
4. Inner core of the Earth is rich in iron and <u>aluminium</u>.
5. <u>Mass</u> is an attraction amount of the Earth to the body.
6. Electric generator (dynamo) converts the kinetic energy into <u>heat</u> one.

B Write the chemical equation representing the following reactions, then indicate the type of reaction :

1. The reaction between carbon monoxide with oxygen.
2. Hydrochloric acid is combined with ammonia gas.

C Give one difference between each of the following :

1. Light waves and sound waves.
2. Inner planets and outer planets.

D Calculate the weight of an object if its mass is 10 kg. and the Earth's gravitational acceleration is $9.8 \, m/sec^2$.

Question 3

A Write the scientific term for each of the following :

1. The distance covered by light in one year.
2. It is an atom that loses one electron or more during the chemical reaction.
3. Huge solid rocky masses that fall from the space, do not burn up completely and some parts of them reach the Earth's surface.
4. Elements don't participate in chemical reactions under the ordinary conditions due to the completeness of their outermost energy levels with electrons.
5. An effect attempts to change the object phase from being static to motion or vice versa or attempts to change the motion direction.

PART 3

B Choose the correct answer :

1. Telescope is used in studying the...............
   a. intensity of earthquakes.
   b. minerals.
   c. volcanoes.
   d. celestial bodies.
2. The biggest units of the universe are...............
   a. planets.
   b. stars.
   c. galaxies.
   d. moons.
3. All of the following are periodic motions except the ....
   a. fan motion.
   b. pendulum motion.
   c. train motion.
   d. sunflower motion.
4. All of the following are metals except ....
   a. iron.
   b. oxygen.
   c. copper.
   d. sodium.
5. From the examples of forces inside living systems is/are ....
   a. pulse inside blood vessels.
   b. inertia.
   c. brakes.
   d. all the previous answers.
6. * .... are examples of sedimentary rocks.
   a. Granite and basalt
   b. Marble and sandstone
   c. Sandstone and limestone
   d. Basalt and limestone

C What happens when ... ?

1. Burning magnesium ribbon in air.
2. There is no ozone layer in the atmosphere.

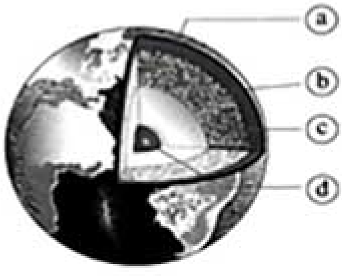
Question 4

A Give reasons for :

1. Acids change the colour of litmus paper into red.
2. Burning of coal and cellulose fibres has bad effects.
3. An object's weight is changed from a planet to another.
4. * We can differentiate between the sandstone and limestone from colour and texture.

B Look at the opposite figure, then answer :

1. Write the names of ⓐ , ⓑ , ⓒ and ⓓ :
2. Which layer is formed of molten metals ?



C Write down the electronic configuration for the atoms of the following elements :

$_{17}Cl$ – $_{10}Ne$

then indicate :

1. The type of each atom (metal – nonmetal – noble gas).
2. The type of each ion (positive – negative – has no ions).
3. Valency of each atom.

24 Beni Suef Governorate

Official Language School

Answer the following questions :

Question 1

A Complete the following sentences :

1. The biggest body in the solar system is the ...., while the biggest inner planet is the ....
2. The liquid metal is ...., while the liquid nonmetal is ....
3. Sound is from ....waves, while light is from .... waves.
4. Inner core is rich in .... and ....
5. * Granite rock consists of .... , ... and .... minerals, while basalt rock consists of .... , ... and .... minerals.

B Mention one importance for :

1. Infrared rays. 2. Electromagnet. 3. Gravity on Earth.

C A metallic element (x) its electrons are distributed in four energy levels.
Number of electrons in the first and last energy levels of this element are equal.
And mass number of this element is double its atomic number. Number of neutrons in its atom is equal to its atomic number.
Number of electrons in its ion is 18 electrons. Answer the following :

1. Electronic configuration.
2. Type of its ion.
3. Type of bond with $^{16}_{8}O$
4. Type of bond with $_{18}Ar$. Give reason for your answer.

PART 3

Question 2

A Write the chemical equation for the following :

1. Reaction between carbon monoxide with oxygen.
2. Burning a magnesium ribbon with oxygen.

B If the Earth's gravitational acceleration in a place is 9.8 m/s^2. Find the weight of the following :

1. 0.3 kg. mass ball.
2. 50 kg. mass boy.

C Write the scientific term :

1. An object position changes as time passes from its initial position to a different final one.
2. Solidified masses of gases, ice and rocks revolve around the Sun.
3. A gas represents 21% of the air volume.
4. Compounds resulted from the combination between oxygen and an element even though it is a metal or a nonmetal.
5. The farthest planet from the Sun.

Question 3

A Compare between each of the following :

1. Sodium sulphide and lead sulphate.
2. Inner planets and outer planets related to (density - number of moons).
3. Crust and mantle related to (thickness).
4. Weak nuclear force and strong nuclear force related to (one use only for each).

B Give reasons for :

1. When an atom gains an electron or more, it becomes a negative ion.
2. Astronauts can't hear each other voices directly in space.
3. Policemen advise drivers to use safety belts in cars and planes.
4. Car tyres are covered with very coarse substances.
5. Chemical equation should be balanced.

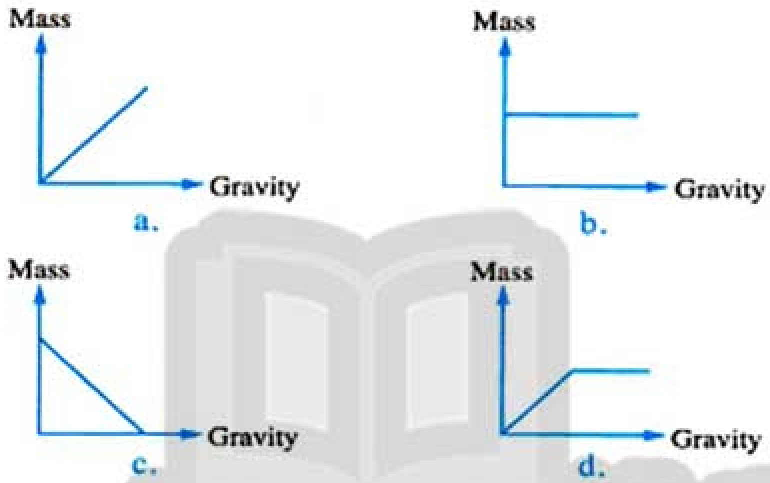
C Write the chemical formula of each of the following :

1. Calcium nitrate.
2. Copper sulphate.
3. Sodium carbonate.
4. Aluminium oxide.
5. Ammonium nitrate.

Question 4

A Choose the correct answer :

1. Which graph that represents the relation between mass of any planet and its gravity ? ....



2. If you are in a moving train, you imagine that the cars moving in the same direction on the road with same speed ....
   a. stop. b. move forward.
   c. move backward. d. move with a high speed.
3. The Earth takes............... to rotate around the Sun.
   a. 24 hours b. 365.25 days c. 30 days d. 60 minutes
4. The triple covalent bond is formed in .... molecule.
   a. hydrogen b. nitrogen c. oxygen d. water
5. Visible light is used in all the following applications except ....
   a. night vision apparatus. b. television cameras.
   c. photographic cameras. d. data shows.
6. In positive ion, the number of protons is .... the number of electrons.
   a. less than b. more than c. equal to d. no correct answer

B Mention the following digits are referring to :

1. 8 planets. 2. 5.9×10^{24} kg. 3. 9.467×10^{12} km.
4. 76 cm.Hg. 5. 0.03% 6. 71%

C Calculate the masses of reactants and products in the following reaction :

$C + O_2 \xrightarrow{\Delta} CO_2$ [Knowing that the mass of (C=12 & O= 16)]

PART 3

25 Sohag Governorate

Sohag Educational Zone

Answer the following questions :

Question 1

A Complete the following sentences :

1. The bond in (NaCl) molecule is .... bond, while the bond in (N_2) molecule is .... bond.
2. Waves are divided into two types which are ....waves and .... waves.
3. The Earth's inner core is rich in .... and ....

B Calculate the mass of an object, its weight is 98 newton. knowing that the Earth's gravitational acceleration = 9.8 m/sec^2

C Write the chemical equation representing the following reactions :

1. Reaction between carbon monoxide with oxygen.
2. Reaction between ammonia and conc. hydrochloric acid.

Question 2

A Write the scientific term :

1. It is the number of electrons gained, lost or even shared by an atom during the chemical reaction.
2. It is a resistant force originated between the object in motion and the medium touching it.
3. It is a type of electromagnetic waves which have heat effect.
4. Breaking of the bonds in the reactants molecules and forming new bonds in the products molecules.
5. The motion which is regularly repeated at equal periods of time.

B Mention the importance of :

1. Ozone layer. 2. Ultraviolet rays. 3. Nitrogen gas.

C Correct the underlined words :

1. <u>Mass</u> of an object is the Earth's ability to attract that object.
2. <u>Fresh</u> water represents 97% and exists in oceans and seas.
3. <u>Sulphur oxides</u> are poisonous acidic gases that affect the nervous system and the eye.

Question 3

A Choose the correct answer :

1. Planets revolve around the Sun in .... paths.

a. circular b. elliptical c. spiral d. irregular

2. Regarding the volume, Earth occupies the .... order (descendingly) in the solar system.

a. fifth b. fourth c. third d. eighth

3. Water masses on Earth's surface form about ....

a. 30% b. 50% c. 71% d. 90%

4. When a nitrogen atom $^{14}_{7}N$ gains electrons to complete its outermost shell, it becomes ....

a. N^{-2} b. N^{-3} c. N^{+3} d. N^{+2}

5. All of the following are covalent molecules except ....

a. H_2O b. MgO c. N_2 d. O_2

6. * The plant roots extend easily through the Earth's ....

a. crust. b. mantle. c. outer core. d. inner core.

B Calculate the total masses of reactants and products of the following reaction :

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$

[Knowing that the mass number of Mg = 24 & O = 16]

C Write the chemical formula for each of the following :

1. Sulphuric acid. 2. Calcium nitrate. 3. Aluminium oxide.

Question 4

A Give reasons for :

1. Policemen advise drivers to use safety belts in cars and planes.
2. Object's weight changes from one place to another on the Earth's surface.
3. Steadfastness of the hydrosphere on Earth's surface.
4. Potassium $_{19}K$ is monovalent, where oxygen $_{8}O$ is divalent.

B Put (✓) or (✗), then correct the wrong ones :

1. Mantle layer lies beneath the Earth's outer core. ( )
2. Earth's radius between the two poles is larger than that at the equater. ( )
3. Acids change the colour of red litmus paper into blue. ( )
4. The normal atmospheric pressure is 70 cm.Hg. ( )
5. Calcium nitrate $Ca(NO_3)_2$ dissolves in water. ( )
6. Simple pendulum motion is a wave motion. ( )